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Manitoba

ANNUAL REPORT

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Manitoba
Natural
Resources

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To Her Honour,
The Honourable Pearl McGonigal
Lieutenant Governor of the
Province of Manitoba

Your Honour:

I am pleased to present to you the fifty-third annual report of the Department of Natural Resources, recording the activities of the Department for the fiscal year ending March 31, 1984.

Yours truly,

Al Mackling

Al Mackling

Minister

The Honourable Al Mackling

Minister, Department of Natural Resources

Sir:

I am pleased to forward the Department of Natural Resources annual report for the fiscal year 1983/84. Rather than making an attempt to summarize all its accomplishments in the year, I would like to draw your attention to the role Manitoba plays, through the activities of the Department, in the provincial, national and international arenas of resource management and conservation.

The Department continues to uphold its commitment to the management of rare and endangered species of wildlife. There are only three free-roaming herds of wood bison in the world, all in western Canada. In February 1984, in cooperation with the Canadian Wildlife Service and the Waterhen Indian Band, a herd of fifty animals was transferred from Elk Island National Park near Edmonton to the Waterhen district of Manitoba as the first step in an attempt to establish a free-roaming herd in this province. The offspring of these animals will be released into the wild. We look forward to the day when the wood bison can be removed from the endangered species list.

A special conservation area in the Delta Marsh on Lake Manitoba has been set aside to protect another threatened species — the piping plover. This site is the only known nesting area for these birds in Manitoba. The special area has been established to prohibit human intrusion during the critical nesting period from April to August. As you are aware, the known world population of piping plovers is about 2000.

The Department continues to carry its part in the management and re-establishment of the rare peregrin falcon. Three young falcons were released from the University of Manitoba in August. About 75 birds were released throughout Canada in 1983.

Manitoba is proud to assist in the restoration of the bald eagle in the northeastern United States. Under an agreement signed between the Province and the U.S. Fish and Wildlife Service in August, 1983, U.S. biologists may take a minimum of six eaglets annually from Manitoba to be relocated in Massachusetts, Pennsylvania and New Jersey where the bald eagle is considered endangered. Surveys have indicated that the Manitoba population of these regal birds is strong enough to allow their translocation so the national emblem of the United States can be strengthened in that country. Of the six eaglets relocated during the summer of 1983, we know that five have survived and are doing well.

A financial agreement was completed between this Department and Indian and Northern Affairs, Canada, to increase returns to Manitoba trappers. Under terms of the agreement, Indian Affairs will augment existing provincial commitments to the industry by up to $250,000 in 1984. Trapping is still a main source of income in many northern communities. Key items under the agreement are expanded trapper education, humane trap development programs, and improved communication services on traplines to allow trappers to operate safely for longer periods farther from their home communities. The Trapline Officer Service, considered to be one of the most successful of its kind in Canada, will be continued.

You will recall that, in September, Manitoba hosted the annual Canadian Council of Resource and Environment Ministers in Winnipeg under your chairmanship. This meeting of ministers from across Canada provides a forum for discussing and seeking solutions to many of the wildlife and forestry problems facing our nation.

Several sensitive wildlife issues were discussed. The Wildlife Ministers agreed to establish the Fur Institute of Canada to oversee the development and implementation of humane trapping systems and to educate the public at home and abroad as to the facts and significance of trapping in Canada. The ministers also discussed various aspects of a Canadian Waterfowl Management Plan, the Migratory Birds Convention Act as it relates to Indian and Inuit hunting in remote areas, the Federal Game Export Act and Guidelines for Wildlife Policy in Canada.

The Forestry Ministers spent a major portion of their efforts addressing a Forestry Sector Strategy for Canada, including forest development agreements, human resources development and forest research. Of great interest to the ministers was the subject of pesticide use in forestry, emphasizing the need for better communication with the public regarding the merits of pesticides in forest management.

In March 1984, the governments of Canada and Manitoba signed a five-year forest renewal sub-agreement to enhance the development of adequate timber supplies and the efficient use of Manitoba's forest resources. Under the agreement, the federal and provincial governments are committed to spend a total of $27 million in an equal cost-sharing program over five years. This sub-agreement is an extension to the Economic Regional Development Agreement signed earlier in 1983. Manitoba's 20-year forest management plan identifies a potential future timber supply shortage. This arrangement stimulates and funds an approach to replenishing the province's harvestable timber supplies.

Manitoba contributes to the operation of the Canadian Interagency Forest Fire Centre. The Centre was created through the cooperation of the resource ministers across Canada. The Board of Directors is composed of the deputy ministers of forestry. The Centre, situated in Winnipeg, provides analytical services to all provinces and disseminates fire management information to ensure effective sharing of resources. The Centre was designed by specialists from British Columbia, Ontario, Manitoba and the Canadian Forestry Service. 1983-84 was the first full year of operation. It fell to Manitoba to chair the board of directors.

Manitoba is blessed with many rivers that figured significantly in the early history of the nation. They provide superlative wilderness and recreational opportunities. Manitoba's participation in the Canadian Heritage Rivers System will now give national recognition to some of them. The Bloodvein River was a prime candidate for nomination to the program. It is rugged, beautiful and enchanting with ancient pictographs on canyon walls and with wild waters that capture the essence of the mystique of the Shield. By a fluke of fortune, I was chairman of the CHRS Board in the first year of its operation — a unique and rewarding experience.

The sustained vigilance of those opposed to the Garrison Diversion Project as it relates to Manitoba's environment is to be commended. Acting as a focal point for the activities of the Government of Manitoba is our own Garrison Focus Office. Visits to Washington, D.C. by delegates from the Manitoba Legislative Assembly and by members of the Canadian House of Commons were coordinated from this office. The facility also continues to provide tactical assistance to various non-government organizations as they express their concerns to government and to the general public on Garrison development.

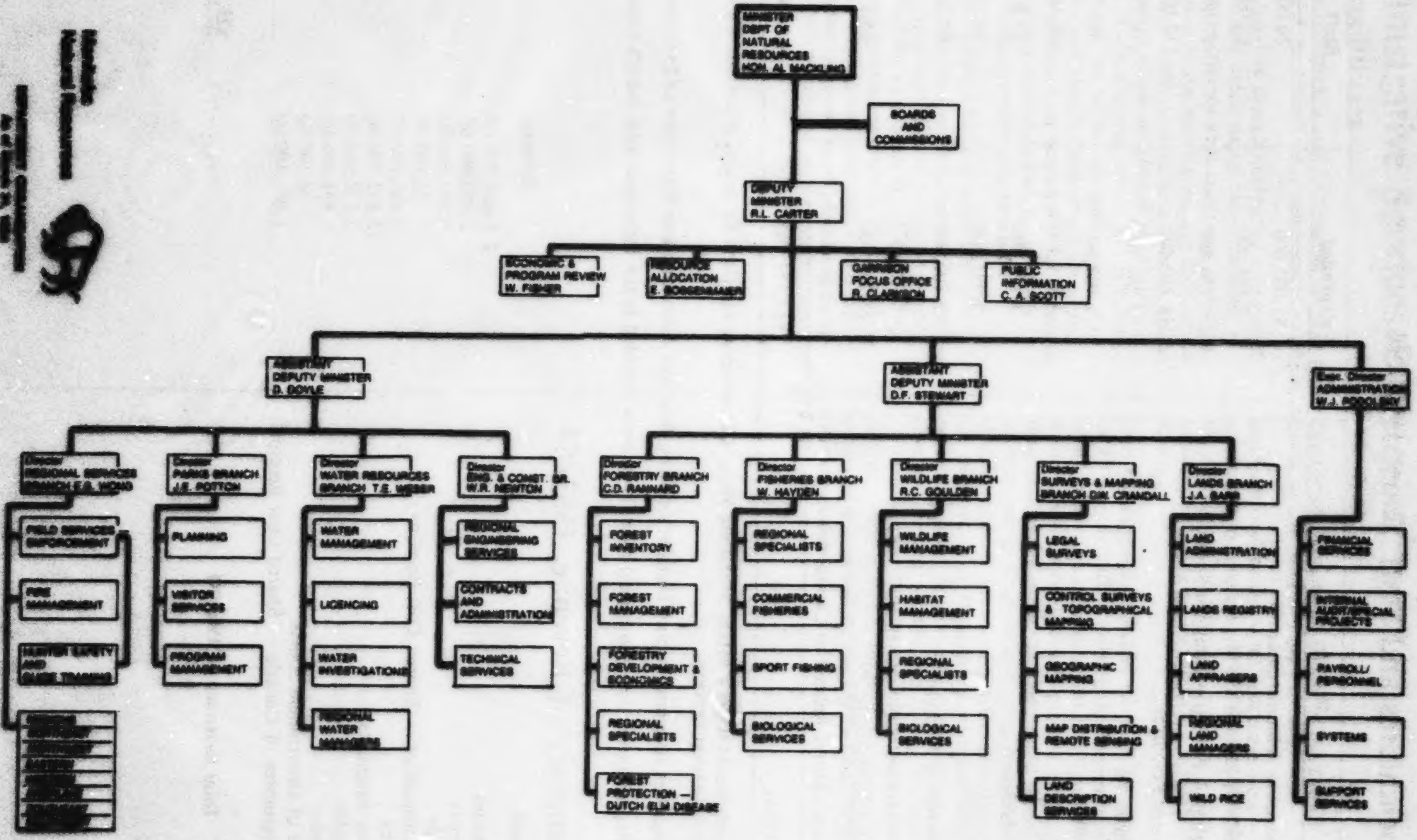
Manitoba continues to play an active role in other water resource management areas in the continental venue through participation on the Prairie Provinces Water Board and the International Joint Commission. Studies continued related to a flood control proposal for the United States portion of the Roseau River and the effects on Manitoba or raising the Lake Darling Dam on the Souris River south of the International Boundary.

The International Peace Garden receives the support of the Department. A grant of more than $80,000 for operation and maintenance was awarded to the park straddling the North Dakota-Manitoba border in the Turtle Mountain. This memorial to the friendship of Canada and the United States is home for the International Music Camp and the Royal Canadian Legion Athletic Camp.

I believe these examples illustrate the part the Department of Natural Resources plays in enhancing Manitoba's reputation among its neighbors and friends outside the province's boundaries. You will find a full summary of the management effort for 1983/84 in the text following. I commend to you the professionalism of a very dedicated staff.

Yours truly,

R.L. (Nick) Carter


MINISTER
DEPT OF
NATURAL
RESOURCES
HON. AL MACKLING
BOARDS
AND
COMMISSIONS
DEPUTY
MINISTER
R.L. CARTER
ECONOMIC &
PROGRAM REVIEW
W. FISHER
RESOURCE
ALLOCATION
E. BOSSENMAIER
GARRISON
FOCUS OFFICE
R. CLARKSON
PUBLIC
INFORMATION
C. A. SCOTT
ASSISTANT
DEPUTY MINISTER
D. DOYLE
ASSISTANT
DEPUTY MINISTER
D.F. STEWART
Exec. Director
ADMINISTRATION
W.J. PODOLSKY
Director
REGIONAL SERVICES
BRANCH E.S. WONG
FIELD SERVICES —
ENFORCEMENT
FIRE
MANAGEMENT
HUNTER SAFETY
AND
GUIDE TRAINING
Director
PARKS BRANCH
J.E. POTTON
PLANNING
VISITOR
SERVICES
PROGRAM
MANAGEMENT
Director
WATER RESOURCES
BRANCH T.E. WEBER
WATER
MANAGEMENT
LICENCING
WATER
INVESTIGATIONS
REGIONAL
WATER
MANAGERS
Director
ENG. & CONST. BR.
W.R. NEWTON
REGIONAL
ENGINEERING
SERVICES
CONTRACTS
AND
ADMINISTRATION
TECHNICAL
SERVICES
Director
FORESTRY BRANCH
C.D. RANNARD
FOREST
INVENTORY
FOREST
MANAGEMENT
FORESTRY
DEVELOPMENT &
ECONOMICS
REGIONAL
SPECIALISTS
FOREST
PROTECTION —
DUTCH ELM DISEASE
Director
FISHERIES BRANCH
W. HAYDEN
REGIONAL
SPECIALISTS
COMMERCIAL
FISHERIES
SPORT FISHING
BIOLOGICAL
SERVICES
Director
WILDLIFE BRANCH
R.C. GOULDEN
WILDLIFE
MANAGEMENT
HABITAT
MANAGEMENT
REGIONAL
SPECIALISTS
BIOLOGICAL
SERVICES
Director
SURVEYS & MAPPING
BRANCH D.W. CRANDALL
LEGAL
SURVEYS
CONTROL SURVEYS
& TOPOGRAPHICAL
MAPPING
GEOGRAPHIC
MAPPING
MAP DISTRIBUTION &
REMOTE SENSING
LAND
DESCRIPTION
SERVICES
Director
LANDS BRANCH
J.A. BARR
LAND
ADMINISTRATION
LANDS REGISTRY
LAND
APPRAISERS
REGIONAL
LAND
MANAGERS
WILD RICE
FINANCIAL
SERVICES
INTERNAL
AUDIT/SPECIAL
PROJECTS
PAYROLL/
PERSONNEL
SYSTEMS
SUPPORT
SERVICES

Manitoba
Natural Resources

DEPARTMENT ORGANIZATION
As of March 31, [illegible]

Expenditures and Staff Years, 1983/84

Branch	Expended	Staff
Executive Administration (1)	$1,002,600	24.00
Administrative Services	2,385,500	87.00
Resource Executive Administrative (2)	734,800	17.00
Water Resources	11,259,400	110.10
Parks	14,507,700	435.17
Lands	1,961,000	56.00
Forestry	6,805,400	108.42
Fisheries	3,725,800	84.20
Wildlife	3,981,500	74.15
Surveys & Mapping	3,101,000	80.26
Engineering and Construction	8,469,900	202.00
Regional Services	26,237,100	368.14
Expenditures Related to Capital Assets	— (3)	—
TOTAL	$84,171,700	1647.40

(1) Includes Minister's office, Manitoba Water Commission, Garrison Diversion office and Public Information Services.

(2) Includes Assistant Deputy Minister's offices, Resource Allocation and Economics and Program Review.

(3) Expenditures related to capital assets have been included in the individual total branch expenditures.

Summary of Revenue, 1983/84

Branch	Revenue	
Fisheries	$ 1,404,700.00	
Forestry	2,450,800.00	
Lands	1,669,500.00	
Municipalities — Shared Cost Receipts	22,100.00	
Parks	3,990,100.00	
Water Resources	12,352,700.00	
Wildlife	2,178,900.00	
Sundry	493,200.00	
Sale of Government Assets	36,100.00	
Government of Canada — Shared Cost Receipts	1,401,100.00	
Total Revenues — 1983/84		**$25,999,200.00**

Administrative Services Division

Responsibilities

Provides administrative and professional support to the Department, ensures on behalf of the Deputy Minister and the Minister that administrative policies, procedures and directives are followed.

Personnel Services Branch completed a review of park patrol and beach patrol classifications. Several other activities were underway, including an assessment of the training requirements of the Department in order to develop a training policy. An affirmative action program is also being developed. A classification review of the resource technician and fire ranger series continues. Workplace Safety and Health Committees are being established to ensure all employees have access to information and representation. A chemicals manual is being compiled and produced.

The Systems Services Section assisted several branches in acquiring microcomputer and word processing equipment. Eleven microcomputers were acquired for such tasks as compilation of statistics and records, research, program evaluation, record keeping and statistical functions. Three branches acquired word processing equipment and reviews for word processers were conducted for two others. The Section produced an inventory of all microcomputers as a step toward developing an overall office automation strategy.

The Administrative Services Division provided other support and services to the Department in many areas. The Internal Audit and Special Projects Section continues to provide a service to managers by reviewing, appraising and reporting on accounting, financial and other operations of the Department. Financial Services coordinated the preparation of Department estimates and performed other services including the distribution and sales of wildlife and fishing licences. General support services relating to library services, vehicles, office support, warehousing and others were provided by the Operational Support Services Section.

Economics and Program Review Section

Responsibilities

Assists departmental management in achieving the efficient and effective use of public funds by providing, on an assignment basis, analytical, economic, and evaluation support services.

Among the numerous projects and activities undertaken in 1983/84 were a number of surveys:

- **To determine landowner views and concerns regarding hunting and other wildlife issues.**
- **Potential cottage owners were surveyed at the Home Expressions Show to determine their needs and demands.**
- **Results of the questionnaire from the Campers Guide were tabulated and plans were completed for a major survey of visitors to Manitoba's provincial parks in 1984.**

A comprehensive review of Departmental fees and charges was undertaken and appropriate fee revision proposals were developed. Related to the review of fees was the development of a map pricing proposal, suggestions for cottage subdivision lot pricing and calculation of revised stumpage rates.

Considerable emphasis was placed on planning and evaluation tasks related to the Department's fire management program. Included were the development of a fire priorities map, an assessment of fire prevention activities and input to an internal fire review board.

Several feasibility and benefit-cost studies were undertaken:

- **Feasibility of winterizing the Department's rental vacation cabins.**
- **Feasibility of establishing a youth hostel in the Whiteshell Provincial Park.**
- **Economic impact statements were developed for several forest management units and proposed provincial parks and provincial forest reserves.**
- **Benefit-cost analysis of the Department's remote sensing program.**
- **Benefit-cost analysis associated with the impact of the proposed Assiniboine South - Hespeler Diversion on Spruce Woods Provincial Park.**
- **An assessment of assets associated with the Falconbridge mine site at Clarke Lake.**
- **A study was conducted to determine what categories of people did not use parks and why they did not.**

Resource Allocation and Planning Branch

Responsibilities

Directs an integrated and coordinated approach to natural resources allocation and planning; plays a lead role in allocation and planning of Crown land; administers the Department's ecological reserves program; assists in providing a comprehensive outdoor recreation and tourism program; formulates and reviews broad departmental program strategies.

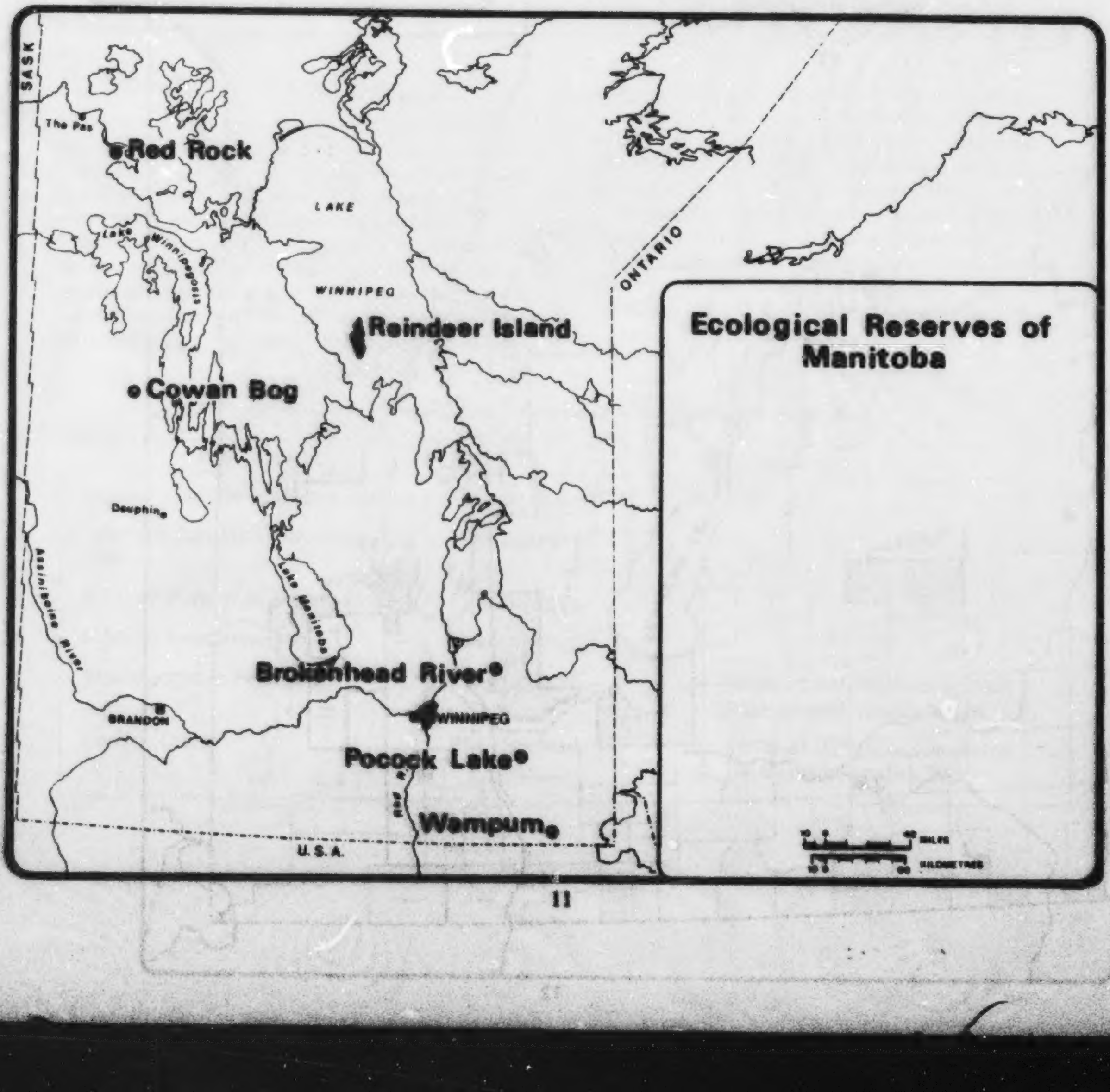
Ecological Reserves

Ecological reserves are legally protected natural areas where human influence is kept to a minimum. They are areas actively utilized for scientific research and education while serving as permanent reservoirs of the province's genetic resources. The goal of the ecological reserves program is to have a representative site set aside in each of Manitoba's major biological communities.

An Ecological Reserves Advisory Committee is composed of four private citizens and two provincial civil servants. The Committee reviewed ten possible reserve sites during the year. Four of these are considered to be worthy of reserve status and steps were initiated toward their designation.

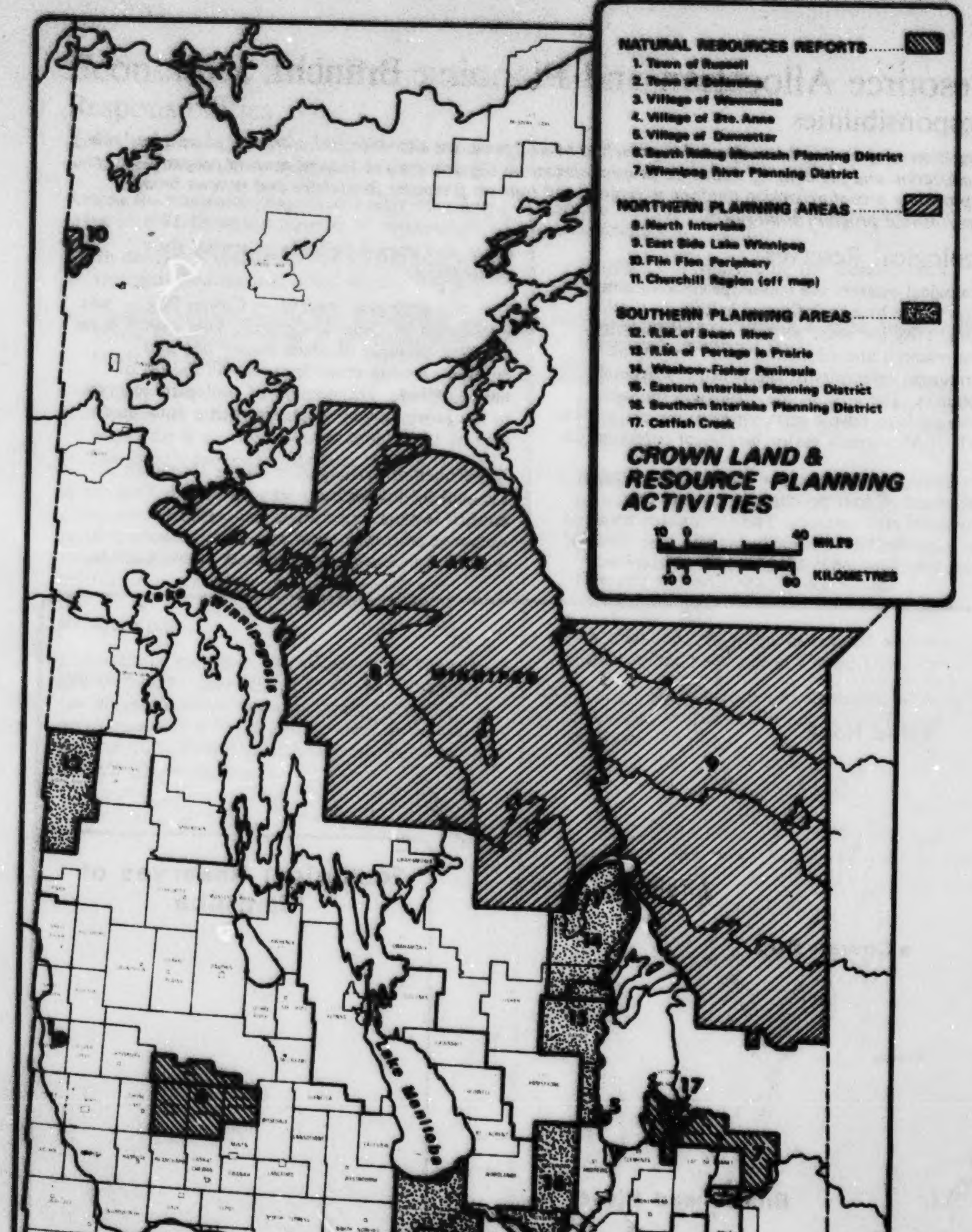
One new ecological reserve — Cowan Bog — was established by Order-in-Council. This reserve is an excellent example of black spruce bog and contains, among other features, six species of native orchids. The number of ecological reserves in the province now totals six with a combined area of 15,500 hectares.

Departmental participation on the Canadian Council on Ecological Areas continued. This council is an interjurisdictional forum for the exchange of information and ideas on ecological reserves and associated programs across Canada.



Ecological Reserves of Manitoba

SASK
The Pas
Red Rock
LAKE
WINNIPEG
Lake Winnipegosis
Reindeer Island
ONTARIO
Cowan Bog
Dauphin
Assiniboine River
Lake Manitoba
Brokenhead River
BRANDON
WINNIPEG
Pocock Lake
Red
Wampum
U.S.A.
MILES
KILOMETRES



CROWN LAND & RESOURCE PLANNING ACTIVITIES

NATURAL RESOURCES REPORTS ▨
1. Town of Russell
2. Town of Deloraine
3. Village of Wawanesa
4. Village of Ste. Anne
5. Village of Dunnottar
6. South Riding Mountain Planning District
7. Winnipeg River Planning District
NORTHERN PLANNING AREAS ▨
8. North Interlake
9. East Side Lake Winnipeg
10. Flin Flon Periphery
11. Churchill Region (off map)
SOUTHERN PLANNING AREAS ▩
12. R.M. of Swan River
13. R.M. of Portage la Prairie
14. Washow-Fisher Peninsula
15. Eastern Interlake Planning District
16. Southern Interlake Planning District
17. Catfish Creek
10 0 40 MILES
10 0 60 KILOMETRES
10
Lake Winnipegosis
LAKE
WINNIPEG
8
9
12
14
15
Lake Manitoba
6
13
16
5
17
7
1
3
2
4

Crown Land and Resource Planning

A) Northern Planning

The Branch is responsible for Crown land overview planning in northern Manitoba. The objective of this program is to coordinate Crown land and resource management through the preparation of interdisciplinary land use plans. Four major program areas were addressed during the year.

Northern Planning

Plan Area	Status	Comments
North Interlake	Progressing	Overview land use plan being prepared.
East Side of Lake Winnipeg	Plan Approved	Overview plan is being broadened into an interdepartmental plan.
Flin Flon Periphery	Progressing	Background information collected; local interest groups will be consulted
Churchill Region	Progressing	Branch an active member of the planning task force. Meetings with residents will be held.

B) Southern Planning

In southern Manitoba, land use planning is the responsibility of the Crown Land Classification Committee which reports to the Provincial Land Use Committee of Cabinet. The Branch is a member of the Crown Land Classification Committee and also provides the Committee's secretariat. Regional committees, called BLOC planning committees, which report to the Crown Land Classification Committee, are responsible for classifying Crown land at the local level.

In addition to the preparation of a number of provincial Crown land plans, the committee reviewed proposals for establishment of several new wildlife management areas and a heritage provincial park. Other activities of the Crown Land Classification Committee included revision of the Committee's Policy and Procedures Manual, updating of its report on Crown land use designations in southern Manitoba, and the processing of 241 requests for the purchase or exchange of Crown lands.

Southern Planning — Crown Land Classification Committee

Plan Area	Status	Comments
Eastern Interlake Planning District	Plan Approved	
Southern Interlake Planning District	Plan Approved	
R.M. of Portage la Prairie	Plan Initiated	
R.M. of Swan River	Plan Initiated	
Washow-Fisher Peninsula	Plan Initiated	Terms-of-Reference completed. Back-ground studies begun.
Catfish Creek	Plan Initiated	Terms-of-Reference completed. Back-ground studies begun.

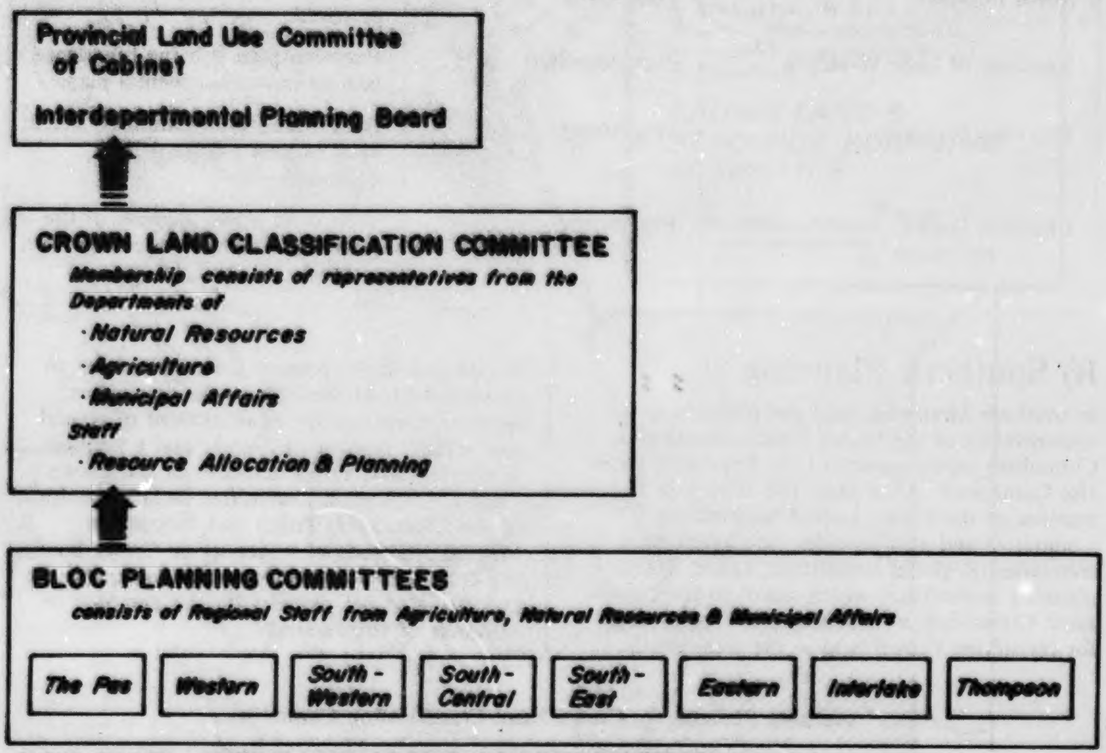
C) Municipal Planning

The Branch, on behalf of and in cooperation with other branches of the Department, prepares papers on natural resources when requested by local Municipal Councils and Planning District Boards. Seven reports were prepared under this program.

The Branch directed the review and evaluation of several draft development plans, basic planning statements and background reports prepared by local municipal authorities, and continued to coordinate the Department's review processes for proposed land subdivisions, municipal by-laws and plan amendments.

Outdoor Recreation and Tourism

The Branch assists in providing a comprehensive outdoor recreation strategy when required for provincial or regional planning. Reviews and comments on outdoor recreation were prepared for several land use and development proposals. Chapters on outdoor recreation were prepared for reports dealing with the Manitoba Environmental


Provincial Land Use Committee of Cabinet
Interdepartmental Planning Board
CROWN LAND CLASSIFICATION COMMITTEE
Membership consists of representatives from the Departments of
·Natural Resources
·Agriculture
·Municipal Affairs
Staff
·Resource Allocation & Planning
BLOC PLANNING COMMITTEES
consists of Regional Staff from Agriculture, Natural Resources & Municipal Affairs
The Pas
Western
South-Western
South-Central
South-East
Eastern
Interlake
Thompson

FLOW CHART – CROWN LAND CLASSIFICATION COMMITTEE

Municipal Planning — Natural Resource Planning Reports

Plan Area	Status	Comments
Village of Ste. Anne	Report Prepared	
Town of Russell	Report Prepared	
Town of Deloraine	Report Prepared	
Winnipeg River Planning District	Report Prepared	
Village of Wawanesa and Dunnottar	Report Compiled	Report prepared from information gathered in previous years.
South Riding Mountain Planning District	Report Compiled	

Assessment and Review Process, with Crown land classification and with municipal and planning district planning.

As the Department's representative on the Licensing Advisory Committee of the Department of Economic Development and Tourism, the Branch reviewed and submitted recommendations on 82 applications for lodges, outcamps and caches throughout the province. These reviews were carried out in consort with other concerned branches of the Department. Availability of natural resources to meet the demands of the particular tourism industry formed the basis for the Department's recommendations.

Environmental Assessment and Review

The Branch prepares Department responses to development proposals that come before the Manitoba Environmental Assessment and Review Agency. Powerlines, roads, and water developments are examined for their potential impacts on resources and resource users.

The Branch is currently coordinating departmental input into the following projects: MANDAN, Limestone, PR 305, Falcon Lake 230 kV powerline, PR 234 realignment and the Gillam to Churchill transmission line.

Strategies and Special Projects

A) Crown Land Sales and Exchanges

In respect to provincial agricultural Crown land sales and LGD land exchanges, the Branch is responsible for clearing through government and local municipal authorities those Crown lands affected by the programs. During the fiscal year, 124 parcels of Crown land requested for purchase and 53 parcels identified for possible exchange were processed by the Branch.

B) Provincial Land Use Policies

The Branch represents the Department on an interdepartmental committee which has the 1980 Provincial Land Use Policies under review. The committee is charged with evaluating the policies in light of their application thus far and with bringing forward suggested revisions.

C) Abandoned Rail Lines

A special study on the use of abandoned rail lines is being conducted. Some 138 kilometres of former right-of-way are being evaluated in terms of their resource and recreation values. Where these values are found to be high, the abandoned rail lines will be reserved for resource and recreation use.

D) Resource and Recreation Roads

A comprehensive study on the Department's road network was completed. Results of the study will assist and guide departmental staff in the planning, construction, operation and maintenance of resource and recreation roads. As a refinement to the study, a special effort is being directed toward the preparation of a road maintenance strategy which will assist the Department in the better allocation of limited maintenance and capital funds.

E) Lake Management Strategies

The preparation of a lake management strategy evaluates alternative solutions to problems associated with the lake, recommends alternative courses of action and then implements the approved course. Lakes under study include: Wanipigow, Kississing, File and Athapapuskow. A manual was written to guide the preparation of lake management strategies.

F) Wetland Conservation

Work continued on the development of a departmental wetland conservation strategy. The object is to identify wetland values, clarify problems and issues relating to wetlands, evaluate current wetland conservation activities in the province and develop a forward-looking Manitoba strategy for the conservation of wetlands. The people of Manitoba will be asked to become involved in the development of the wetland strategy.

G) Other

Other special activities during the year included the Lee River Project, an undertaking with other departments to resolve land development conflicts in the Lee River-Pinawa Channel area; the Twin Creeks Land Evaluation Study, an interdepartmental examination of several townships in the northern Interlake region for their agricultural and natural resource capabilities; and the Northern Flood Agreement which is addressing several issues and concerns related to impacts of hydro development in the north. The yearly update of the "Crown Lands Handbook for Agro-Manitoba" was also completed. This report identifies in map format the location of Crown lands in southern Manitoba.

Public Information Services

Responsibilities

Advises on and coordinates communications programs to identify public needs and provides information to the public about resource policies and programs on behalf of the Department.

As noted, Public Information Services acts as a service agency for producing and disseminating information on behalf of the other branches of the Department. Therefore, most activities are recorded elsewhere in this report. Public Information contributed to many major programs, including Dutch Elm Disease, park rowdiness campaign, fire prevention, park signs projects and Flood Damage Reduction Program. The Branch also coordinated emergency information services on behalf of the Department during the severe fire situation on Labour Day weekend, 1983.

Ongoing programs include Resources News, the Outsider and Conservation Comment.

Public Information — Other Activities

Activity	1982/83	1983/84
News Releases	107	126
Public Inquiries Received	31,000	32,280
Print, Design and Advertising	263	250
Public Service — Films/Publications	4,809	4,295

Garrison Focus Office

Responsibilities

Coordinates Manitoba's efforts against the construction of the Garrison Diversion Unit as presently designed; acts as a focal point of the activities of the Government of Manitoba in respect to its opposition to the Garrison Project; acts as a source of updated information for the public and nongovernment organizations interested in the project.

The establishment of the Garrison Focus Office in February of 1982 coincided with an increase in Manitoba's active opposition to the Garrison Diversion Project as authorized. A firm of lawyers specializing in environmental issues, employed in Washington, D.C., provides advice on how Manitoba's case can be best presented to members of the U.S. Congress. A lawyer from the staff of the Attorney General of Manitoba has assisted Canadian Embassy staff in Washington to ensure that Manitoba's concerns were being brought to the attention of members of the U.S. House of Representatives and the Senate. During 1983, he worked in Washington under the general guidance of the Canadian Ambassador for a period of six weeks.

During 1983/84 consultative meetings between Manitoba, Canada and United States Departments of Interior and State were again initiated. These discussions resulted in agreement to form a technical committee through which Manitoba's technical concerns about the Garrison Project could be discussed. The work of this committee has resulted in some design changes to the project and in other areas, of reassurance and acceptance of precautions being taken within the construction of facilities included in Phase 1. The U.S. Congress has continued to provide funds for Phase 1 on the condition that the money is not to be used for the construction of facilities that would result in Missouri River water draining into the Hudson Bay Basin.

Visits to Washington by delegations from Manitoba Legislative Assembly and by members of the Canadian House of Commons were again coordinated by the Garrison Focus Office. Tactical assistance was also provided to the members of the Action Committee regarding Garrison and the United Canadian-American Anti-Garrison Lobby Group in respect to visits by their members to Washington to meet with U.S. Senators and members of the House of Representatives.

The U.S. Congress continues to appropriate funds for the Garrison Diversion Unit. However, progress has been made in convincing the majority of the members of the House of Representatives that the project as designed should not proceed. Also, an increasing number of U.S. Senators are now questioning the merits of the project. Opposition is growing not only in Canada but in the United States as well.

The distribution of informational material on Garrison has continued with numerous presentations to school classes, wildlife organizations and environmental groups during the year. Updated brochures have been made available and American and Canadian newspaper articles distributed to increase the understanding of both Canadian and American citizens about the reasons for Manitoba's concerns in respect to the Garrison Diversion Project.

Regional Services Branch

Responsibilities

Enforces resource acts and regulations; delivers and monitors resource management programs and services to the public; administers and operates provincial parks; manages and conducts wildfire prevention, detection and suppression programs.

Regional Activities

A) General

Regional Services staff provided services in wildfire control and suppression, problem wildlife management, community relations, legislature development, enforcement and supervisory and operational responsibility for various resource branches, including parks.

B) Northeastern Region

The Polar Bear Alert Program was one of the longest and busiest on record. One fatality in the town of Churchill and one mauling on a Tundra Buggy tour at Cape Churchill occurred. Approximately 250 staff days of Natural Resource Officer time plus support staff time was directed to this program.

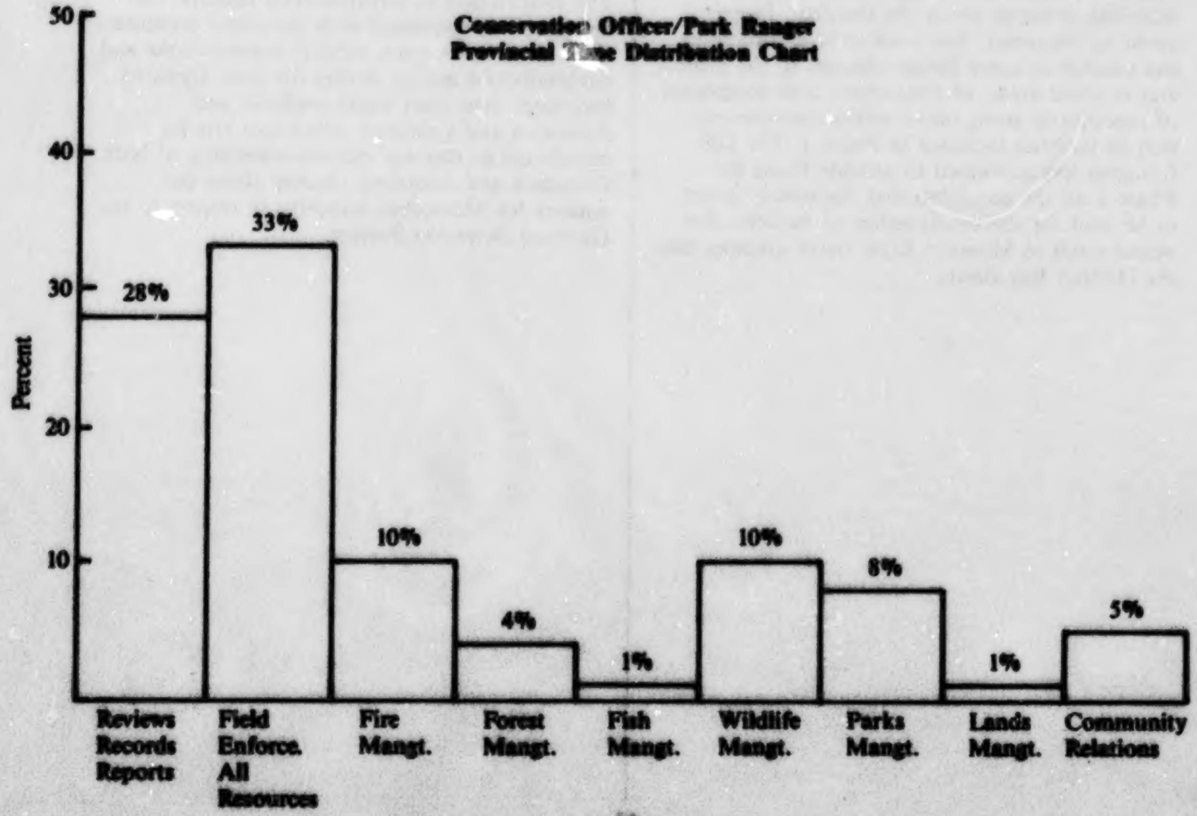
A moose population survey was conducted in the Cross Lake-Norway House R.T.L. Sections in accordance with the Northern Flood Agreement. Northeastern Region Natural Resource Officer staff was heavily involved with this project.

Improvements to the Paint Lake Winter Recreational Area continued during the year. Winter barbeque shelters were constructed, the toboggan slide was improved and a new 'jam-pail' curling rink proved to be popular.

C) Northwestern Region

The Saskeram Wildlife Management Area and adjacent grazing area boundaries were finalized after meetings and participation by Ducks Unlimited, Farmers Association, Indian Band, Wildlife Federation and the L.G.D. of Consol.

A new seasonal camping bay with 23 lots was opened at Bakers Narrows Recreation Park.



Conservation Officer/Park Ranger Provincial Time Distribution Chart

D) Western Region

A designated route system was established in Duck Mountains to provide a better quality hunt and control indiscriminate use of the vast network of logging access roads.

The Western Region, in cooperation with the Freshwater Fish Marketing Corporation initiated a project to assist producers in producing better quality mullets.

Greater emphasis was placed on fisheries patrols on Lake Winnipegosis. A 97% compliance rate of the commercial fishing activity was recorded.

E) Southwestern Region

Construction of Cornwallis and Holland Wayside Parks were completed and a shower/washroom building was constructed at Rivers Recreational Area under the Jobs Creation Fund. Development of Spruce Woods Provincial Park continued at the Devil's Punch Bowl and Spirit Sands.

The four-season concept for Elk/Moose hunting in Game Hunting Area 23 was implemented. The boundary cut-line along the Riding Mountain National Park was closed to hunting. During the fall deer season an estimated 20,000 hunters were active in the Southwestern Region with a success rate of 50-60%. Officers checked 5700 hunters and responded to an increasing number of calls related to hunting on private land without permission.

The Manitoba/Canada Beaver Control Program continued. Requests for services increased by 31% over 1982/83. Staff removed more than 400 dams and about 450 beavers in response to landowner complaints.

F) Eastern Region

The region experienced one of the most severe fire seasons in recent years. On the Labour Day weekend, Nopiming Provincial Park was evacuated because of the dangerous fire situation.

The Little Grand Rapids Indian Band held several meetings with Department staff, Indian Affairs and the South East Tribal Council in an effort to get commercial fishing operations underway in Family Lake. Ice was put up for summer fishing but transportation problems to market prevented start-up.

A deer feeding program in Birds Hill Provincial Park appears to have been successful in its attempts to reduce the number of animals killed by vehicles on HWY #59. The herd size in the park has increased to about 140 animals.

Only 5500 trees were taken under the "cut your own" Christmas tree program, compared to more than 10,000 the previous year. More than 40,000 people attended the tenth annual Folk Festival in Birds Hill Provincial Park. Nearly 14,000 skiers used the facilities at Springhill Winter Park, down about 600 from the winter of 1982/83.

G) Interlake Region

Twenty volunteer Firetac Crews continued to play a major role in the fire prevention program throughout the agriculture areas. The primary function of this brigade on a non-fire year was to spread the fire prevention message to their neighbors and to thereby reduce man-caused fires. First-year success in this aspect can be termed excellent, as discussions with farm groups reveal a renewed attitude towards fires.

Fisheries patrols were increased on Lake Winnipeg, Lake Manitoba and Cedar Lake. The number of infractions detected increased from 66 the previous year to 98 in 1983/84. Extreme hot weather created a massive die-off of fish in these lakes. However, this problem was limited primarily to the lower-priced species.

Incidents of nightlighting were reduced substantially. Moose hunting success improved in the Riverton burn area, but showed a marked decline in the balance of the region.

The largest portion of time spent in problem wildlife management was in the area of wolf control. Staff were trained on techniques of control and then worked throughout the winter reducing problem wolf populations. A total of 42 animals in the agricultural zone were removed.

H) Southeastern Region

Thirty-one complaints on illicit trafficking in wild meat and fish in the Winnipeg area were received compared to 20 during the last fiscal year. The increase is credited to improved public awareness. Investigation has resulted in seven charges being laid.

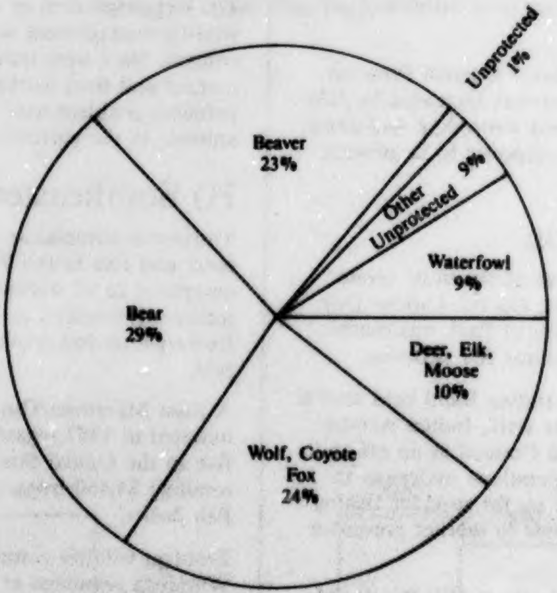
A joint Manitoba/Ontario/U.S. investigation initiated in 1982 regarding the illegal export of fish to the United States resulted in penalties totalling $4,460 being assessed against a Manitoba fish dealer.

Problem wildlife complaints within the City of Winnipeg remained at the high levels experienced during the previous fiscal year. Two hundred and seventy-nine (279) animals were relocated compared to 307 animals during 1982/83.

Problem Wildlife Occurrences, 1983/84

Species					Region			
	NE	NW	SE	SW	E	INTER	W	TOTAL	% OF TOTAL
Beaver	3	15	128	292	33	82	628	1,181	36%
Bear	174	47	194	105	283	59	152	1,014	31
Elk	—	—	—	9	—	14	21	44	6
Moose	—	—	3	2	1	—	—	6	
Deer	—	2	52	66	2	14	8	144	
Wolf	37	3	14	4	5	49	27	139	4
Coyote	—	3	19	31	2	17	12	84	4
Fox	—	—	8	10	2	6	10	36	
Waterfowl	2	57	25	90	—	78	59	311	10
Other Fur	—	3	32	19	4	2	9	69	5
Other Protected	—	8	30	18	5	23	7	91	
Unprotected	—	8	45	29	11	33	16	142	4
TOTAL	216	146	550	675	348	377	949	3,261	100%

DISTRIBUTION OF OFFICER TIME EXPENDED ON PROBLEM WILDLIFE BY SPECIES, REGIONAL SERVICES BRANCH, 1983 FISCAL YEAR.



TOTAL TIME EXPENDED ON PROBLEM WILDLIFE EQUALS 2131.8 SMD's OR 6.6% OF TOTAL OFFICER TIME EXPENDITURES

The most common violations under the Provincial Park Lands Act, 1983/84.

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warning	Total
Create disturbance/cause mischief	61	—	8	3	—	294	366
Illegal parking	5	—	—	—	—	51	56
Unauthorized fire	16	—	—	—	—	16	32
Damage/deface park/public property	9	—	—	—	—	15	24
Operate vehicle in non-designated area	5	—	—	—	—	15	20
Other	44	1	5	—	—	122	172
Totals:	140	1	13	3	—	513	670

Total Fines: $7,100.97
Average Fine: $50.72
Costs: $719.15

The most common violations under the Highway Traffic Act, 1983/84.

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warning	Total
Speeding	15	—	3	1	—	39	58
Disobey traffic control device	13	—	1	—	—	18	32
Unregistered vehicle	9	—	—	—	—	19	28
Licence/registration suspended	9	—	1	—	—	3	13
Drive without licence	8	—	—	1	—	3	12
Ride in unsafe manner	6	—	1	—	—	5	12
Other	41	1	5	2	—	39	88
Totals:	101	1	11	4	—	126	243

Total Fines: $5,218.00
Average Fine: $ 51.66
Costs: $520.25

The most common violations under the Liquor Control Act, 1983/84.

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warning	Total
Unlawful possession of liquor	451	2	26	2	—	85	566
Unlawful possession by minor	48	—	3	1	1	5	58
Consume/intoxicated in public	2	—	—	—	—	2	4
Show cause (seized liquor)	2	—	—	—	—	—	2
Other	1	—	1	—	—	—	2
Totals:	504	2	30	3	1	92	632

Total Fines: $24,112.25
Average Fine: $ 47.84
Costs: $2,185.10

Comparison of Wildlife(1) and Fishery(2) Prosecutions from 1974/75 to 1983/84.

Fiscal Year	Wildlife	Fishery
1974/75	373	367
1975/76	492	422
1976/77	463	315
1977/78	698	276
1978/79	804	321
1979/80	782	370
1980/81	438	446
1981/82	897	597
1982/83	557	475(3)
1983/84	634	555

(1) Includes violations under The Wildlife Act and The Migratory Birds Convention Act.

(2) Sport fish violations only are shown for 1981/82 and earlier.

(3) Includes The Fisheries Act (Canada) and The Fisheries Act (Manitoba).

The most common violations under the Fisheries Act (Canada), the Freshwater Fish Marketing Act, and the Fisheries Act (Manitoba), 1983/84.

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warning	Total
Sport Fishing							
Fail to carry/produce licence	15	—	3	3	—	229	250
Sport fish without licence	93	—	4	1	—	65	163
Exceed limit	68	—	1	3	—	8	80
Angle with too many lines	56	—	—	—	—	19	75
Unattended line/fish	23	—	2	—	—	8	33
Transport without head/ skin/scales	11	—	1	—	—	20	32
Commercial Fishing							
Commercial fish without licence	12	7	7	—	—	6	32
Fail to comply with permit conditions	20	1	5	—	—	2	28
Fail to mark equipment	15	—	1	—	—	7	23
Decayed fish	10	—	—	—	—	2	12
Fail to remove equipment	1	—	—	—	—	10	11
General:							
Fish/possess fish other than in accordance with Act/Regulations	62	2	19	—	—	16	99
Fish during closed season	31	3	3	—	—	12	49
Fish/possess without lawful excuse	23	—	5	—	—	1	29
Other:	27	1	15	—	1	33	77
	467	14	66	7	1	438	993

Total Fines: $33,392.25
Average Fine: $ 71.50

Costs: $1,877.10

The most common violations under The Wildlife Act, 1983/84.

Nature of Offence	Guilty	Dismiss	Stay	Withdraw	Adjourn	Warning	Total
Nightlighting	87	—	31	—	—	5	146
Loaded firearm	103	1	6	1	—	3	[illegible]
Hunt on private land without permission	31	—	14	—	—	14	59
Hunt out of season	35	1	16	3	—	—	55
Hunt without licence	25	1	7	—	—	15	48
Other	136	17	61	5	—	141	360
Totals:	417	43	135	9	—	178	782

Total Fines: $53,686.00
Average Fine: $ 128.74

Costs: $6,621.45

Summary of recorded violations by Act/Regulation, 1983/84.

Legislation Offended	Disposition							Total Offences	Percent Increase or Decrease[1]
	Prosecutions						Written Warnings		
	Guilty	Dismiss	Stay	Withdraw	Adjourn	Total			
Wildlife	417	43	135	9	—	604	178	782	−7
Fisheries	467	14	66	7	1	555	438	993	+6
Liquor Control	504	2	30	3	1	540	92	632	+7
Provincial Park	140	1	13	3	—	157	513	670	+21
Highway Traffic	101	1	11	4	—	117	126	243	−49
Fires Prevention	47	1	3	—	1	52	33	85	−17
Criminal Code	14	5	15	—	—	34	4	38	−51
Migratory Birds	27	—	3	—	—	30	22	52	+21
Clean Environment	16	—	3	—	—	19	20	39	−19
Snowmobile	17	—	1	—	—	18	29	47	+327
Forest	10	—	1	—	—	11	57	68	−20
Small Vessels	7	—	—	—	—	7	1	8	−83
Petty Trespass	2	—	—	—	—	2	7	9	−18
Crown Lands	—	—	—	—	—	—	4	4	−20
Totals:	1,769	67	281	26	3	2,146	1,524		
	3,670							3,670	−4

Fines: $131,866.97 (+3%)*
Costs: $ 12,591.60 (+181%)*

Warnings: 1,524 (−13%)*
Prosecutions: 2,146 (+3%)*

[1] As compared to the previous year, 1982/83

I) Resource Management Assistants' Program

In an effort to promote local hiring for regionally-based departmental positions, the Department of Natural Resources initiated the Resource Management Assistants' Program in May of 1983. Training modules were developed covering fire management, trapline administration, forest management, fisheries and wildlife technology.

During the year six trainee Resource Management Assistants were hired, one each at Nelson House, Cross Lake, Moose Lake, Little Grand Rapids, Dauphin and Skownan. In addition, several part-time Resource Management Assistants are hired each season to work on continuing projects or programs in fisheries, forestry and wildlife.

J) Conservation Officer Training — Northern Flood Agreement

In May of 1983, the Department, in conjunction with Department of Education, Department of Labour & Manpower, and Department of Northern Affairs initiated action on Article 15.7 of the Northern Flood Agreement which provides for the training of local people in order that they can become qualified as conservation officers or resource technicians.

Seven candidates were selected and received on-the-job training during the summer. In September the candidates entered Keewatin Community College to receive upgrading studies in preparation for their enrollment in a two-year Renewable Resources Technology Course which will be offered starting in the fall of '84. These seven candidates will be part of an anticipated 25-member first-year class in Resources Technology at Keewatin.

Fire Management and Communications

Until mid-August, 1983, a below average number of forest fires had been reported in the province — 333. The most active fire area over the spring and summer was the Eastern Region. Until the end of August, Eastern Region's fire suppression forces had achieved extraordinary success despite adverse weather and fire conditions. Only 9300 hectares burned as a result of 198 fires. But the resources of the region were strained and assistance was obtained from other regions.

A hot, dry August created an extreme fire hazard. Then, on the night of September 2, Labour Day weekend, a dry lightning storm passed over the eastern portion of the province, igniting more than 40 new fires in the Whiteshell and Nopiming provincial parks and along the east side of Lake Winnipeg. Several fires in the Whiteshell were brought under control quickly in spite of adverse weather conditions. But by noon the next day, most of the fires north of the Winnipeg River were out of control, many too dangerous to action.

Because of 70 KPH winds and 35°C temperatures, Nopiming Provincial Park was evacuated. More than 1000 people from the park and many more from the community of Little Grand Rapids were evacuated without injury or incident. The massive suppression effort peaked on September 11th when more than 1000 fire fighters, 30 helicopters, five waterbombers and much heavy equipment were in action. The total cost of the operation was approximately 6.5 million dollars.

The newly-opened Beresford Lake Provincial campground and the Manigotagan Wayside Park were burnt. Four privately-owned summer cottages were also lost. More would likely have burned except for extraordinary efforts by fire fighters. Over 80,000 hectares were burned as a result of the Labour Day weekend fires, nearly 70,000 hectares in Nopiming Provincial Park alone. However, property losses were minimal, forest resources supporting the area's pulp and paper industry were protected and no lives were lost and no serious injuries occurred. A Board of Inquiry was established to review the effectiveness of the Department's fire response system and to determine what could be learned from the experience. Recommendations and guidelines were developed for future use in similar circumstances.

As part of the Wildfire Suppression and Control Program, the Helitac Base at Paint Lake near Thompson was completed during the summer of 1983. The base is capable of housing 25 Helitac crew members and ten trainees, who receive fire training at the base. There are now three Helitac bases operating in Manitoba and 26 Firetac crews placed strategically throughout the province.

In connection with the Paint Lake Helitac base, a hose-drying and patching facility was constructed in 1983. It was immediately put to use in September repairing and drying fire hose used on the Labour Day weekend fires.

The Province entered into an Agreement with the federal government for the purchase of two CL - 215 waterbombers for delivery in 1986 and 1988 to bring the total number of waterbombers to five.

A total of 23 aircraft were under contract during the fire season — 3 CL-215 waterbombers, 2 Otters, 2 Turbo Beavers, 3 Bell 204's, 4 Bell 206's, 5 Cessna 337's, 2 Cessna 180's, 1 Helio Courier and 1 P.A. — 18 Super Cub. Other aircraft and helicopters were hired as necessary to support fire operations during fire outbreaks. Total time in all flying operations for the season was 10,953.8 hours. Manitoba's CL - 215 waterbombers assisted the Province of Ontario with 38.4 hours of flying time to aid in their suppression efforts. Ontario reciprocated by providing CL - 215 support in Manitoba during September.

The newly installed Provincial Lightning Detection System provides "real-time" information, lightning activity and location to assist in early fire detection and suppression activities. The information provided by the system allows air detection flights to concentrate on areas of known lightning strikes.

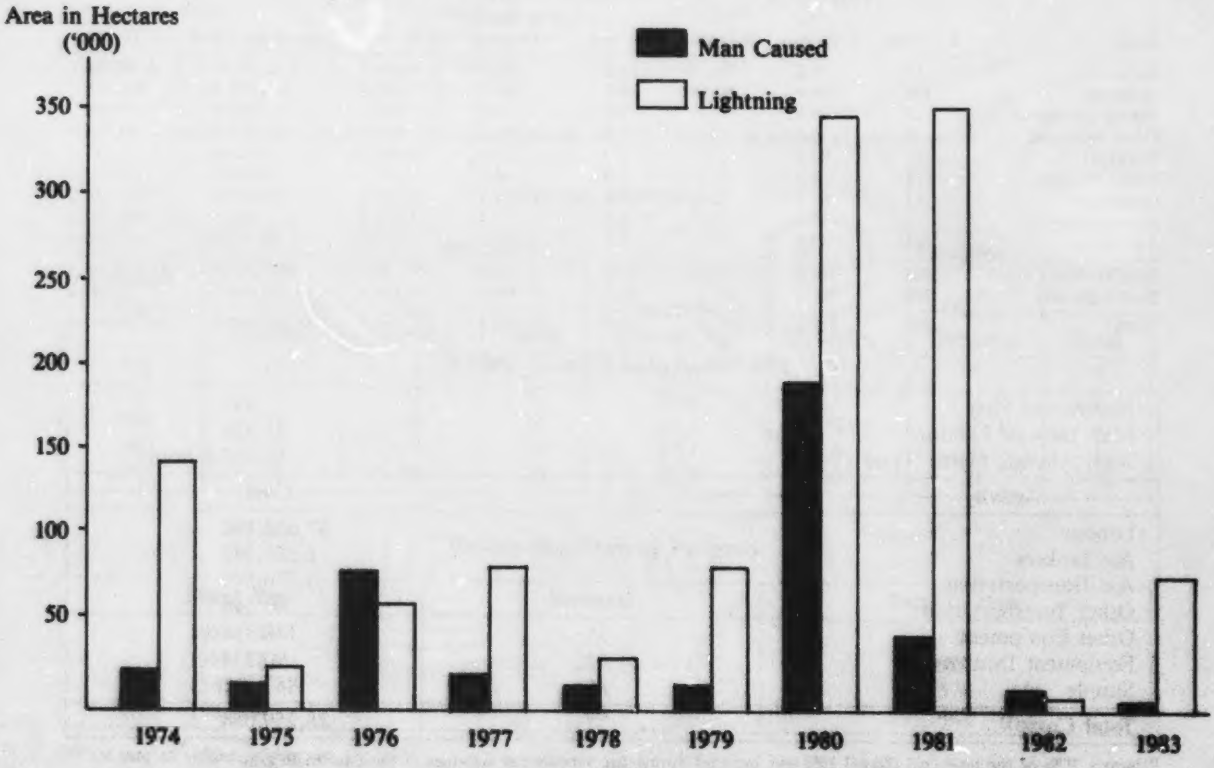
The role of the general public in fire detection continues to be important. Of the 535 fires reported during the year, 228 were first detected and reported by the general public, private aircraft and railway workers.

An advanced (Level IV) fire management training course was held in March for Departmental staff and as well as numerous sessions for seasonal staff members. The woods industry and some municipal governments within or close to the wooded districts also received fire training.

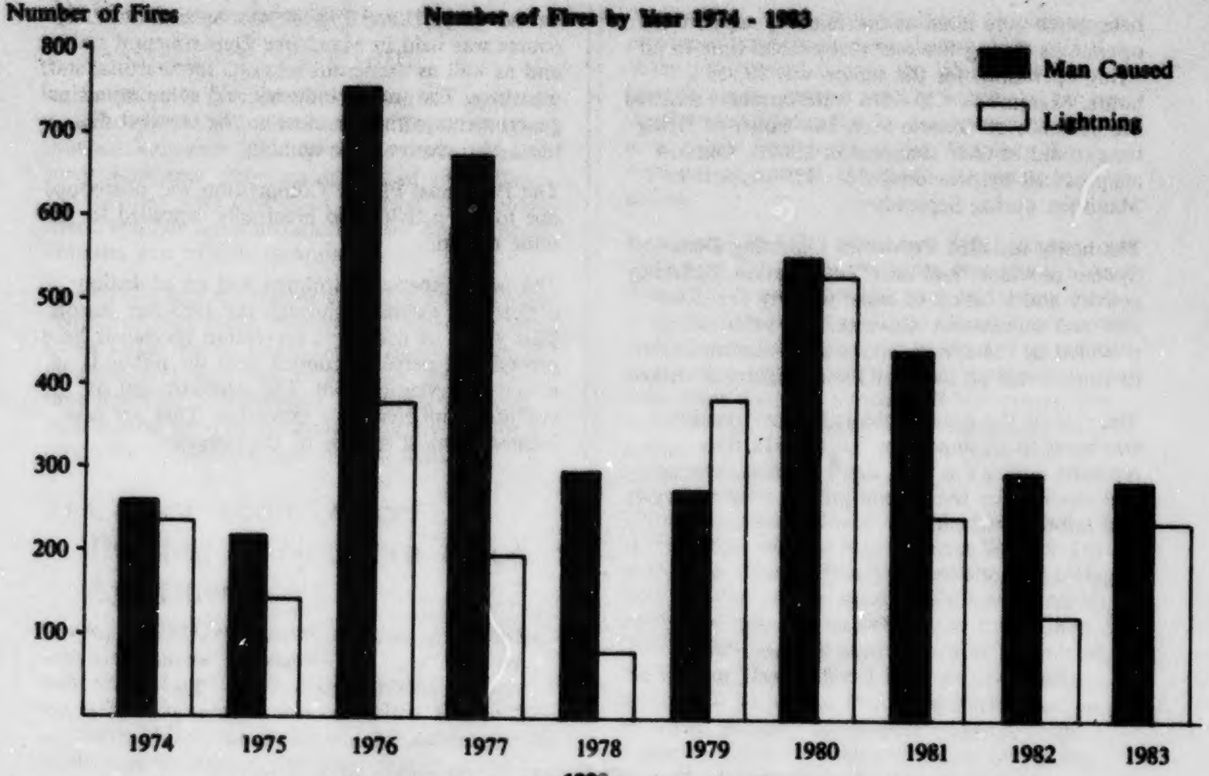
The Provincial Firetac Competition was postponed due to fire activity and eventually cancelled for the same reason.

The use of special patrolmen and an education officer was extended through the 1983 fire season. This group of dedicated prevention specialists have proven that personal contact with the public is an effective prevention tool. The establishment of volunteer fire crews has expanded. They are now located in most regions of the province.

Area Burned by Year 1974 - 1983 (in thousands of hectares)



Number of Fires by Year 1974 - 1983



1983
Fire Causes — Area Burned — Suppression Costs

Cause	# of Fires	5 Yr. Avg.	% Total	5 Yr. Avg.	Area Burned (Hectares)	5 Yr. Avg.	Suppression Costs	5 Yr. Avg.
Recreation	82	81.2	15.3	12.0	293.5	9,886.2	$165,378.0	$197,484.6
Settlement	108	109.6	20.1	16.0	307.1	17,005.6	299,992.0	242,346.2
Woods Operations	3	4.6	.5	1.0	5.2	407.6	1,088.0	186,499.0
Other Industrial	6	6.6	1.1	1.0	69.2	107.4	28,972.0	25,733.6
Railways	17	20.2	3.1	3.0	47.3	1,106.4	74,146.0	74,631.6
Public Projects	19	7.4	3.5	1.0	46.0	133.7	35,434.0	26,873.4
Incendiary	13	83.2	2.4	12.0	172.2	12,782.7	16,388.0	226,345.2
Miscellaneous	1	22.6	0.1	4.0	.1	1,872.2	805.0	106,484.6
Agriculture	44	33.8	8.2	5.0	6,451.8	3,347.9	88,212.0	75,525.6
Total Human Caused	293	368.0	54.7	55.0	7,392.4	48,199.2	$683,415.0	$1,012,764.6
Total Lightning	242	301.6	45.2	45.0	91,760.4	193,556.1	7,575,669.0	7,774,191.2
TOTAL	535	669.6	100.0	100.0	99,152.8	247,755.3	$8,259,084.0	$8,786,955.8

Fire Suppression Costs — 1983/84

Number of Fires	535
Man Days of Labour	37,928
Total Aircraft Flying Time	10,953.8 hours
Activity	**Cost**
Labour	$2,658,190
Air Tankers	1,169,942
Air Transportation	3,276,570
Other Transportation	40,596
Other Equipment	140,951
Equipment Destroyed	90,374
Supply	882,461
Total Costs(1)	$8,259,084

(1)Nearly 78% of the total cost ($6,441,350) was incurred during fire suppression activities in the Eastern Region.

Other Activities

Legislation prepared on behalf of client agencies and enacted during the year included regulations under The Wildlife Act, The Ecological Reserves Act and The Provincial Parklands Act and Orders of the Minister under The Manitoba Fisheries Act. Amendments were prepared for the Manitoba Fishery Regulations and Boating Restriction Regulations under the Canada Shipping Act.

Other programs administered by the Regional Services Branch include the Livestock Compensation Program, Hunter and Firearm Safety Program, Bowhunting Training Program and Guide Training Program.

Livestock Compensation Program

Year	Claims Received	Claims Denied	Claims Withdrawn	Claims Paid	Average Paid	Total Paid
1979/80	5	4	0	1	$ 609.50	$ 609.50
1980/81	8	3	2	3	763.17	2,289.50
1981/82	21	10	0	11	572.73	6,300.00
1982/83	23	11	0	12	1,125.00	13,500.00
1983/84	26	15	1	10	1,051.80	10,518.00

Hunter and Firearm Safety Program

Calendar Year	Students	Total to Date	Instructors(1) Certified
1979	3846	74,242	47
1980	3905	78,147	51
1981	4641	82,788	63
1982	4460	87,248	45
1983	3315	90,563	58

(1) There is a turnover of approximately 50 volunteer instructors each year. There is an average of 450 instructors each year.

Firearm Accidents

Calendar Year	Accidents				Fatalities		
	Hunting	Non-Hunting	Total	Average Shooter Age	Hunting	Non-Hunting	Total
1979	18	9	27	27.8	0	2	2
1980	9	13	22	28.4	1	2	3
1981	24	10	34	23.5	2	2	4
1982	13	7	20	27.1	0	1	1
1983	8	12	20	27.6	2	3	5

Bowhunting Training Program

Fiscal Year	Students	Total to Date
1980/81(1)	74	74
1981/82	228	302
1982/83	76	378
1983/84	64	442

(1) First year of voluntary program.

Guide Training Program

Fiscal Year	Number of Courses	Guides Trained	Total to Date	Licences Issued
1979/80	5	116	429	558
1980/81	5	87	516	610
1981/82	5	112	628	615
1982/83	4	91	719	775
1983/84	5	97	816	753

The Branch also operated the Birds Hill tree Nursery. Planting stock was distributed for use in provincial parks, campgrounds, golf courses and for landscaping around provincial buildings. The number of seedlings and plants distributed each year continues to increase.

Parks Branch
Responsibilities

Manages a park system to provide for the conservation and management of wildlife and flora, for the preservation of cultural ecological and other resources therein and to facilitate the enjoyment of outdoor recreational opportunities for Manitobans and visitors to Manitoba; develops plans to meet the recreational needs of the public; plans and manages park visitor programs; administers the management of recreational businesses in parks; plans and manages special user programs.

Visitor Services

More than 1.4 million vehicles entered Manitoba provincial parks in 1983/84, with vehicle counts in the top ten parks up 13.3% over the previous year.

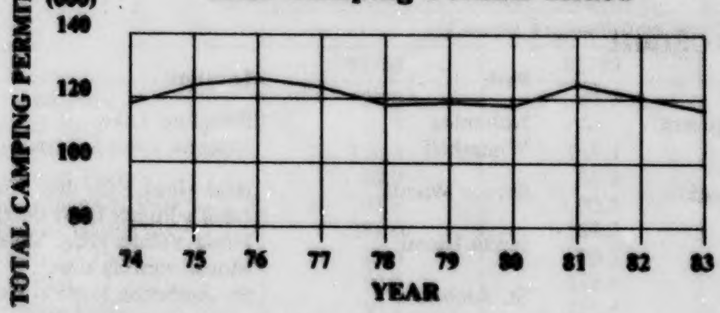
Five new self-guided trails were developed and ten existing trails were upgraded. A viewing blind on the newly developed Picket Creek Trail in Whiteshell Provincial Park offers the visitor a chance to view beaver and wood ducks in their natural habitat. A historic trail at Hecla describes Icelandic settlement in Manitoba. Also underway is the restoration by stabilization of several buildings in the Hecla Village.

In cooperation with the Red River Nordic Ski Club, new world-class cross-country ski trails were laid out in Grand Beach Provincial Park. This cooperation effort resulted in a first class trail system and trail use increased by 250%. Year-round trails in Asessippi and Birds Hill were permanently signed for cross-country skiing and summer hiking.

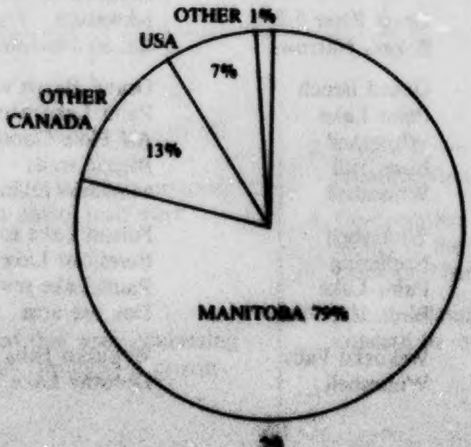
The first fully automated slide show was produced on Whiteshell Provincial Park for show at amphitheatres. It has received good reviews from the Whiteshell Businessmen's Association. Other slide shows produced this year were Ernest Thompson Seton and The Black Bear.

Both the Mantario Trail brochure and a new edition of the Grand Old Days booklet were produced for sale to the public. The Mantario Hiking Trail was acclaimed as, "The best nature guide of its type" by the editor of Canadian Heritage Magazine.

Total Camping Permits Issued



Origin of Permit Holders, 198

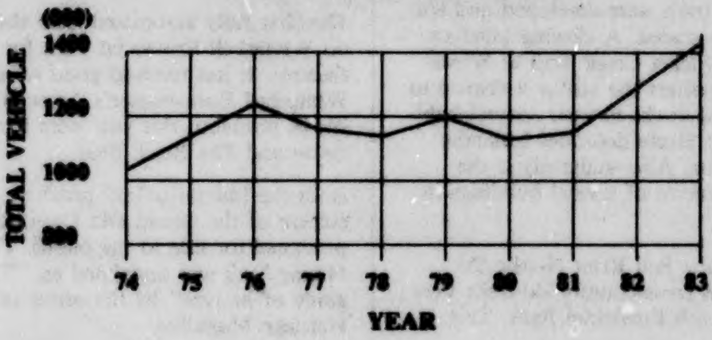


Park Entrance Permits

Year	Number of Daily	Revenue	Number of Daily Buses	Revenue	Number of Seasonals	Revenue	Total Permits	Total Revenue
1980*	131,582	$197,373.00	64	$701.50	29,351	$234,800.00	160,997	$432,874.50
1981*	145,024	$217,547.50	77	$850.00	29,496	$235,968.00	174,594	$454,365.50
1982*	141,175	$282,350.00	69	$770.00	29,655	$296,550.00	170,899	$579,670.00
1983*	160,380	$320,758.00	50	$580.00	29,451	$294,510.00	189,881	$615,848.00

*Included are revenues and permits collected at Head Office:
1980—$432.00; 1981—$470.00; 1982—$620.00; 1983—$480.00.

Total Vehicle Attendance



A) Capital Program

Project Category	Park	Location
Campground Development	Nopiming	Beresford Lake
	Whiteshell	Nutimik Lake Seasonal campground
Preservation/Conservation	Spruce Woods	Bald Head Hills dev. Phase II
		Devil's Punch Bowl development
	Hecla Island	Hecla Village Bldg. Stabilization
		Moose viewing tower
	St. Ambroise	St. Ambroise Erosion Control
Garbage Facilities	Nopiming	Tulabi Falls, Wallace Lake, Long Lake, Lake Wanipigow
	Grass River	Iskwasum
	Bakers Narrows	Bakers Narrows
Trails and Displays	Grand Beach	Grand Beach winter trail
	Paint Lake	Paint Lake winter trail
	Whiteshell	Alf Hole Goose Sanctuary
	Birds Hill	Bicycle trails
	Whiteshell	Mantario hiking trail
Sewer/Water	Whiteshell	Falcon Lake townsite water system
	Nopiming	Beresford Lake water well
	Paint Lake	Paint Lake sewer & water line
	Birds Hill Park	Day use area
Electrification	Wekusko Falls	Wekusko Falls campground
	Whiteshell	Dorothy Lake Trailer Village

Project Category	Park	Location
Boat Launches	Paint Lake	Liz Lake Paint Lake Zed Lake Berge Lake
	Grindstone	Black's Point
Golf Courses	Whiteshell	Falcon Lake golf course improvements
	Hecla Island	Hecla Island golf course improvements
Handicapped Facilities	Whiteshell	Nutimik washroom Portage Spillway Wayside — fishing facility
	Turtle Mountain	Washroom at William Lake provided access to all park offices
	Spruce Woods	Improved all walkways in park
	Rivers	New handicapped washroom
	Asessippi	Campground — picnic table extensions — all 3 washrooms Pavilion — washroom and sidewalks made handicap accessible
	Manipogo	Campground — handicapped access to washrooms
	Duck Mountain	*Ibid*
	Porcupine Forest	*Ibid*
	Overflowing R.	*Ibid*

	Capital Expenditures (000's)		
Major Parks	**81/82**	**82/83**	**83/84**
Asessippi Provincial Park	23.0	43.7	29.1
Beaudry Provincial Park	26.7	—	39.8
Birds Hill Provincial Park	170.4	163.4	196.2
Clearwater Provincial Park	48.7	81.9	40.2
Duck Mountain Provincial Park	93.8	90.5	48.2
Grand Beach Provincial Park	231.0	189.7	118.8
Grass River Provincial Park	22.5	10.5	24.9
Hecla Provincial Park	50.4	138.6	544.4
Nopiming Provincial Park	50.1	115.4	78.6
Spruce Woods Provincial Park	474.1	171.9	128.3
Turtle Mountain Provincial Park	268.9	38.8	42.9
Whiteshell Provincial Park	678.6	780.8	741.6

B) Beach Patrol

Beach Patrol was provided at 9 beaches servicing 2,566,900 park users. Beach patrol staff were responsible for 44 rescues.

C) Park Patrol

1. **87 officers were employed this year, contacting almost 140,000 park users throughout provincial parks.**
2. **Emphasis on foot patrols resulted in the early identification of problems.**
3. **Co-operation with R.C.M.P. was excellent, aiding in the effective control of break-ins and other problems.**
4. **Liquor-related problems were still a major concern in many parks.**

D) Program Management

Cost/Revenue Performance

Item	Number	Cost		Revenue	Revenue/Cost
Golf Courses	2	$ 512,585		$ 290,318	57%
Campgrounds	85	2,701,019		1,305,952	48%
Cottages	5,270	1,379,700	Service Fees	401,790	29%
			Rental	979,607	
Entrance Gates	11	194,001		615,848	317%
Vacation Cabins	34	67,165		65,760	97%
Commercial Concessions, Games areas & Misc.	150	N/A		231,135	N/A
Non-Revenue Areas		5,537,447		N/A	N/A
Total of all Park Programs		$10,391,917		$3,890,400	37%

Major Parks	Actual Expenditure 83/84 (000's)	Actual Revenue 83/84 All Sources (000's)	Revenue/ Expenditure Ratio
Turtle Mountain Provincial Park	366.4	30.0	8%
Spruce Woods Provincial Park	617.0	72.5	12%
Asessippi Provincial Park	193.0	30.0	16%
Clearwater Provincial Park	317.3	74.2	23%
Hecla Provincial Park	887.4	223.5	25%
Birds Hill Provincial Park	1,135.2	398.1	35%
Duck Mountain Provincial Park	297.8	105.9	36%
Grand Beach Provincial Park	731.9	372.2	51%
Grass River Provincial Park	42.0	26.5	63%
Nopiming Provincial Park	175.0	107.7	61%
Whiteshell Provincial Park	2,542.4	1,780.2	70%
Beaudry Provincial Park	13.2	44.2	335%

E) Capital Program

Project Category	Park	Location
Campground Development	Nopiming	Beresford Lake
	Whiteshell	Nutimik Lake Seasonal campground
Preservation/Conservation	Spruce Woods	Bald Head Hills Dev. Phase II Devil's Punch Bowl Development
	Hecla Island	Hecla Village Bldg. Stabilization Moose viewing tower
	St. Ambroise	St. Ambroise Erosion Control
Garbage Facilities	Nopiming	Tulabi Falls, Wallace Lake, Long Lake, Lake Wanipigow
	Grass River	Iskwasum
	Bakers Narrows	Bakers Narrows
Trails and Displays	Grand Beach	Grand Beach winter trail
	Paint Lake	Paint Lake winter trail
	Whiteshell	Alf Hole Goose Sanctuary
	Birds Hill	Bicycle trails
	Whiteshell	Mantario hiking trail

Project Category	Park	Location
Sewer/Water	Whiteshell	Falcon Lake townsite water system
	Nopiming	Beresford Lake water well
	Paint Lake	Paint Lake sewer & water line
	Birds Hill Park	Day Use area
Electrification	Wekusko Falls	Wekusko Falls campground
	Whiteshell	Dorothy Lake Trailer Village
Boat Launches	Paint Lake	Liz Lake
		Paint Lake
		Zed Lake
		Berge Lake
	Grindstone	Black's Point

Park Revenue Summary for April 1 — December 31, 1983

Park Use	Total Revenue
Park Fees:	
Camping	$1,305,952.
Park Entrance, Daily	321,338.
Park Entrance, Season	294,510.
Sub-total	$1,921,800.
Games Area:	
Golf Course, Hecla Island	125,220.
Golf Course, Falcon Lake	165,097.
Tennis Court, Falcon Lake	5,761.
Miniature Golf, Falcon Lake	24,680.
Lawn Bowling, Falcon Lake	1,924.
Sub-total	$ 322,682.
Rentals/Leases:	
Cabin Rental	
Camp Morton	20,394.
Hecla Island	31,227.
Ironwood Point	14,040.
Sub-total	$ 65,661.
Permits/Leases:	
Summer Homes	1,313,601.
Commercial	165,793.
Lot Development Fee	24,724.
Land Permits/Leases	44,193.
Miscellaneous	7,591.
Sub-total	$1,555,902.
Other:	
Other Games Area Revenue	670.
Laundry Facilities	1,195.
Miscellaneous	21,469.
Sub-total	$ 23,334.
GRAND TOTAL	$3,889,379.

Systems and Master Planning

A Provincial Park System Plan was completed in August, 1983. The plan sets down long-term direction for the management of existing provincial parks and the creation of new ones. The plan highlights a greater variety of parks including Manitoba's first wilderness park, several new heritage sites and other recreational facilities. It strives for better representation of Manitoba's cultural heritage and its natural landscapes. The plan provides for the protection of unique or rare and endangered species of plants and animals. Greater emphasis has been placed on preserving the natural and cultural resource base. A colorful summary brochure of the plan was prepared and distributed to the public.

The Whiteshell Management Plan was also completed in August, 1983. The plan is the first officially approved park management plan in the Manitoba park system. Implementation of the plan has already begun with the expansion and redevelopment of the Nutimik seasonal campground and a back-country clean-up program.

Management plan programs for Grass River and Turtle Mountain Provincial Parks are continuing. Public input into the Grass River draft plan was completed in March, 1984. Interim management guideline reports were completed or updated for Beaudry and Nopiming Provincial Parks.

Water Resources Branch

Responsibilities

Provides short and long-term planning for the management and development of water resources in Manitoba; plans and develops the construction and maintenance programs for provincial water control works; conducts studies and investigations related to the management and use of the water resources in the province; administers several water-related Acts of the Legislature, including The Water Rights Act and The Water Power Act; provides engineering services to municipal councils and conservation districts boards.

Water Management

A) Permits and Approvals

1) Investigations and Designated Flood Area Permits

Waterway Opening Investigations	1387
Crown Land use Investigations	354
Red River Valley Designated Flood Area Permits	39

2) Hydroelectric Power Generation

	1982	1983
Water Power Rentals	$11,063,936.00	$11,750,667.50
Storage Charges (Collected from producers and paid to Canada)	165,777.82	188,104.32
Land Rentals	483,763.48	473,082.38
Total	$11,713,477.30	$12,411,854.20
Total Power Production (Kilowatt hours)	20,588,631,200	21,979,423,300

3) Water Supply for Existing Power Developments

River	Average Flow	% of Long-term Average
Winnipeg River (Slave Falls)	921 m³/s	109.3%
Nelson River (Kelsey)	2220 m³/s	89.5
Saskatchewan River (Grand Rapids)	602 m³/s	75.6

Lake	Approved Range	Levels		Outflows	
		Low	High	Low	High
Lake of the Woods	321.9 m - 323.5 m	March 322.54 m	Dec. 323.10 m	June 166 m³/s	Jan. 779 m³/s
Lac Seul	353.0 m - 357.2 m	Dec. 355.15 m	Sept. 356.43 m	July 84.2 m³/s	Nov. 368 m³/s
The flow into Lac Seul through the Lake St. Joseph Diversion averaged 75.2 m³/s in 1983.					

Requests for the Use of Crown Land, 1983/84

Nature of Request	Number of Requests	Number of Parcels Involved
A) Lands Within Water Power Reserves		
— Remove Reserve	23	23
— Temporary Use of Land	29	30
— Purchase of Land	12	13
— Request for Water Lot	7	7
— Other Uses (subdivisions, exchanges, easements, etc.)	35	149
B) Lands Within Operation of Water Power Licences		
— Remove from Operation of Licence	1	2
— Temporary Use of Land	9	10
— Purchase of Land	1	1
— Other Uses (subdivisions, exchanges, easements, etc.)	14	19
C) Crown Land Outside of W/P Reserves/Licences		
— Proposed Sale for Agriculture (including appeals)	25	181
— Transfer Under the Local Government District Land Transfer Program	4	46
— Purchase for Other Purposes	36	40
— Temporary Use Under Lease or Permit	101	102
— Other Uses (subdivisions, exchanges, easements, etc.)	57	127
Total	354	750

Water Power Development to December 31, 1983

Owner	River	Plant Name	Normal Head in Metres	Installed Capacity in Megawatts Present	Installed Capacity in Megawatts Ultimate
City of Winnipeg	Winnipeg	Pointe du Bois	14.02	78.33	78.33
City of Winnipeg	Winnipeg	Slave Falls	9.14	71.62	71.62
Manitoba Hydro	Winnipeg	Seven Sisters	18.59	149.20	149.20
Manitoba Hydro	Winnipeg	Great Falls	17.07	125.33	125.33
Manitoba Hydro	Winnipeg	Pine Falls	11.28	85.05	85.05
Manitoba Hydro	Winnipeg	McArthur	7.01	59.68	59.68
Prov. of Manitoba	Kanuchuan	Kanuchuan	5.49	1.42	4.25
Manitoba Hydro	Laurie	No. 1 Site	16.76	5.22	5.22
Manitoba Hydro	Laurie	No. 2 Site	16.76	5.22	5.22
Manitoba Hydro	Nelson	Jenpeg	7.32	167.10	167.10
Manitoba Hydro	Nelson	Kelsey	15.24	219.32	313.32
Manitoba Hydro	Nelson	Kettle	30.02	1,253.28	1,253.28
Manitoba Hydro	Nelson	Long Spruce	24.38	1,007.10	1,007.10
Manitoba Hydro	Saskatchewan	Grand Rapids	38.10	447.60	447.60
Total				3,675.47	3,772.30

Undeveloped Water Power, 1983/84(1)

Manitoba's Undeveloped Water Power Resources in Continuous Megawatts at 88% Efficiency		
River	**95% of Time**	**50% of Time**
Berens	5.22	17.16
Burntwood	394.04(2)	512.20(2)
Churchill	102.95(2)	138.76(2)
Gods	26.11	43.27
Grass	5.22	19.40
Hayes	2.24	8.95
Kanuchuan	11.93	19.40
Laurie	1.49	2.24
Nelson	1,817.03(3)	3,042.11(3)
Pigeon	15.66	40.28
Seal	123.09	347.63
Total	2,505.00	4,191.40

(2)With Churchill River Diversion
(3)With Churchill River Diversion and Lake Winnipeg Regulation

(1)The figures represent the amount of power which could be available continuously on the indicated bases, and do not include developed or undeveloped power available at the Jenpeg, Kelsey, Kettle and Long Spruce sites on the Nelson River, at Kanuchuan on the Kanuchuan River or at Sites No. 1 and 2 on the Laurie River. If fully developed, the total installed capacity of the above rivers would considerably exceed the figures.

The undeveloped water power resources are estimated to be slightly more than 2,500 continuous megawatts, at 95% flow. The major water power rivers are located in the northern part of the Province.

Water Development Planning

(A) Provincial Water Management

1) Fairford Dam

The Fairford Dam is used to maintain Lake Manitoba between 247.15 m and 247.76 m. The current target level is 247.55 m. Although a lower target level would result in additional native hayland being available to area farmers in an average year, the social and economic values of the lake for recreation, fish and wildlife would be reduced. Terms of reference for a review of this matter have been provided to the Manitoba Water Commission.

The installation of a fishway in the dam was completed in January, 1984. Early indications are that it is operating satisfactorily and that it is effective in accommodating fish movements.

2) Souris River

Agricultural lands along the Souris River are repeatedly inundated by spring floods. This is particularly severe in the reach from the International Boundary to Hartney. However, most damage occurs to cropland in the Melita and Lauder reaches where the duration of flooding is so prolonged that crop production is often impossible.

(B) Water Rights

Branch Activities in Administering The Water Rights Act, 1983/84

	Surface Water	Groundwater
Number of Applications	100	53
Number of Licenses issued for the Purpose of:	—	—
Domestic Use (including stockwatering)	2	—
Municipal	4	1
Industrial	—	2
Irrigation	30	23
Waterfowl Conservation	4	—
Air Cooling	—	2
Recreation	—	1
Number of Site Inspections	69	65
Number of Complaint Investigations	10	4

Although the Souris River Basin Study and other investigations have revealed that there are no economically justifiable agricultural flood damage reduction projects, farmers in the valley are reluctant to accept these results and continue to press for removal of the Hartney Dam, the construction of cutoffs in the Lauder-Sandhills area and other channel modifications.

The matter has been referred to the Manitoba Water Commission and the Branch has provided information to the Commission as requested.

3) Water Demand Study

A computerized data system was established by the Prairie Provinces Water Board to store water use information for each of the six sector reports that were prepared as appendices for the Water Demand Study. The establishment of this central data storage system ensures that water use information required for planning and forecasting purposes will be readily available.

4) Pasquia and Carrot River Land Settlement Project, Polder III

A study had been initiated in 1981 to determine the economic feasibility and implications of developing Polder III in the Pasquia Settlement including draining Pasquia Lake. Since the study had been based on incomplete soils data in the Pasquia Lake bed, a detailed soil survey and salinity study was undertaken in 1983. A re-evaluation of the original study confirmed the economic viability of the project and a final report was completed.

The project would involve gravity drains and large pumps, resulting in a net increase of approximately 7000 hectares of agricultural land.

The Department has been directed to prepare a schedule of surveys, designs, construction, and funding for development of the project. Consideration is currently being given to including this project under the Agri-Food Development Agreement.

5) Whitemouth River Flood Control

Investigation of flooding problems along the Whitemouth River in eastern Manitoba was prompted by a request from the LGD of Reynolds to investigate the feasibility of installing a control structure in the headwater area of the watershed. In addition to the control structure proposal, Water Resources Branch will also examine several other flood control schemes that have been studied in the past.

Cost estimates associated with previous studies have been updated, local residents have been interviewed and field inspections completed. The damage associated with frequent flooding has been assessed by the Department of Agriculture.

6) Fisher River

Two possible headwater storage alternatives have been examined as a means of reducing peak flows on the Fisher River at the Peguis Indian Reserve in Manitoba's Interlake. The first is a diversion-detention project located near Dallas at an estimated cost of seven million dollars. The other would be storage in the Switzer Creek area. Survey information of the Switzer Creek area has recently been provided by PFRA and a preliminary design and cost estimate is currently being prepared.

7) St. Malo Reservoir

St. Malo Reservoir was constructed in 1958 primarily as a water supply reservoir. Since that time the recreational potential of the area has been developed and a Provincial Park has been established. Criteria are now being established by which both the water supply and the recreational potential of the area may be maximized.

Prior to approving any water withdrawal requests, a minimum water level is being established for St. Malo Reservoir below which no licensed withdrawals will be permitted.

8) Dennis Lake/Fish Lake/Oak Island Marsh

A multidisciplinary task force has been established to develop a water management concept for the entire Dennis Lake/Fish Lake/Oak Island Marsh area in the Interlake region. Besides the Water Resources and Wildlife Branches, Manitoba Department of Agriculture, Ducks Unlimited, Canadian Wildlife Service, and local residents are represented on the task force. A Local Advisory Committee also ensures that the plan developed by the task force has the support of area residents.

The task force is re-examining the alternatives for Dennis Lake regulation first established in 1983, and is preparing regulation concepts for Fish Lake and the Oak Island Marsh area. Most of the field investigations relating to the present study have been completed.

9) Catfish Creek

The Catfish Creek drainage system in the Pine Falls area was originally developed in the 1950's and improved over time on a piece-meal basis. To determine whether further improvements on a systematic basis are warranted, a preliminary study was initiated to evaluate the adequacy of the provincial waterway portions of the system. The study will also examine the standard of service applicable to the area.

10) North Duck River

Agricultural land adjacent to the North Duck River near Cowan has been affected by severe flooding and soil erosion. The Cowan District Steering Committee, representing the residents of the area, has requested a study of possible flood and erosion control measures along the river. The Water Resources Branch, with the Manitoba Department of Agriculture, will examine potential headwater storage sites and investigate the feasibility of diversion, dyking or reconstruction of the North Duck River. Non-structural options, such as cultural practices, will be considered as well.

11) La Salle River

The La Salle River provides an outlet for several agricultural drainage systems and with the prospects of future agricultural drainage improvements, the river may be expected to handle more. A study was initiated in the summer of 1983 to provide designs for systems presently using the river as an outlet and to determine potential flooding problems that might occur as a result of higher flows.

12) North and South Bibeau Drains

The Cooks Creek Conservation District had requested a preliminary economic evaluation of upgrading the drainage standard of the North Bibeau and South Bibeau Drains within the district. The preliminary investigation, completed in March, indicated the cost of such an undertaking would total about $466,700; $233,100 for North Bibeau and $233,600 for South Bibeau. The benefit-cost ratios were estimated to be 0.6 and 2.1 respectively for combined ratio of 1.3.

13) Community Pasture Drain

Plans are underway to upgrade five kilometres of Provincial Road 267 in the Rural Municipality of Dauphin. At the same time, a study is being conducted to decide whether the adjacent provincial waterway should be reconstructed in its present location along the road or re-routed. The study was undertaken in response to local complaints of flooding along the drain and will include an assessment of current drainage and runoff control requirements. The study will also examine the feasibility of re-routing a portion of the Zoria drainage system into the Community Pasture Drain.

14) Other

Shannon Creek —

Five potential headwater storage sites in the upper Shannon Creek watershed in the Red River Valley are currently being investigated to determine the effect they would have on reducing flood flows in the provincial waterways downstream of the boundary between the Rural Municipalities of Roland and Thompson.

Vestfold Marsh —

A proposal to improve waterfowl habitat, provide flood protection and improve drainage in the Vestfold Marsh area of the Interlake has been prepared and submitted by Ducks Unlimited. The Water Resources Branch is currently studying this proposal to evaluate its effect on flooding.

Dubas Creek Drainage System —

A benefit-cost analysis of improvements to the Dubas Creek drainage system has recommended that the drainage standard be upgraded by approximately 300% at an estimated cost of 1.2 million dollars.

Washow Bay/Blind Bay Drainage System —

At the request of the Rural Municipality of Bifrost and the Local Government District of Fisher an examination of drainage problems in the Washow Bay/Blind Bay drainage system is being conducted. The study is examining the nature of the problems and the agricultural potential of the area. A summary of possible solutions and recommendations will be prepared.

Scott Drain —

Agricultural flooding regularly occurs along the Scott Drain in the Rural Municipalities of Cartier and Portage la Prairie. A report submitted in January, 1983 analyzed the feasibility of drainage improvements and provided the results of a benefit-cost analysis.

Lady Hubble Creek —

Plans are underway to upgrade eight kilometres of this Provincial Waterway on the Porcupine Mountain escarpment because of flooding and erosion along the drain. A study completed in the spring of 1984 determined that the cost of possible solutions would range from 0.9 to 1.3 million dollars.

Reservoir Regulation —

The operation of reservoirs was carried out on all major reservoirs replenished after spring runoff with the exception of Oak Lake and Pelican Lake.

(B) Inter-governmental Water Management

(1) Roseau River

The United States Army Corps of Engineers is now able to begin the work required in order to obtain the concurrence of the Manitoba government to proceed with the proposed flood control project. The Corps has requested it be provided with a detailed scope of work for the preparation of the Environmental Impact Assessment as well as for the final design of the mitigating works in Canada complete with associated costs and monthly schedules of expenditures. This information is being compiled.

2) Lake Darling Dam

A study by the Burlington Dam Task Force to determine the effect on the Souris River in Manitoba of raising the Lake Darling Dam is continuing.

Water Control Works

The Water Resources Branch establishes and monitors design, construction and maintenance standards for water control works. The actual construction is carried out by the Engineering and Construction Branch.

Construction of the Grandview Storage Reservoir and the Edwards Creek Reservoir were completed. Land was purchased and a start was made on acquisition of easements for the La Salle River Enchancement Project.

Methods of providing expedient and equitable compensation for damages resulting from overflows from the Portage Diversion were investigated.

Staff continued to provide technical engineering and draughting services to the Department of Northern Affairs in establishing severance lines required under the Northern Flood Agreement.

An annual report was prepared by the Dyking Commissioner on the maintenance and operation of the primary dykes within the City of Winnipeg. A comprehensive inventory of all water control works in the Province was updated to aid in budgeting for maintenance and reconstruction.

Conservation Districts

(A) Conservation Districts Authority

The Conservation Districts Authority provides administration and control of provincial grant funds to the conservation districts for drainage, flood control, soil and water conservation, recreation of fish and wildlife management.

(B) District Reports

1) Whitemud Watershed Conservation District

The construction of a double-dyked floodway along the Big Grass River between Waldersee and the Big Grass Marsh is underway. A study to determine the feasibility of dyking Westbourne to protect it from the 100 year flood is being conducted.

2) Turtle River Watershed Conservation District

Resource data for an update of the Turtle River Watershed Conservation District resource management scheme is being assimilated. Six feasibility studies involving drainage improvement were completed. A computer-produced thematic map was prepared for the District.

Grants Provided in 1983/84

Conservation District	Amount
Whitemud Watershed	$ 783,108.31
Turtle Mountain	189,062.64
Turtle River Watershed	493,431.54
Alonsa	150,304.21
Cooks Creek	151,871.36
Administrative costs of maintaining the Conservation Districts Authority	13,077.96
Total	**$1,780,856.02**

3) Turtle Mountain Conservation District

A study for a detention dam on Dooley's Coulee is complete and indicates that the project is economically viable. A flood protection study for Deloraine has been initiated. All pertinent resource data for the District scheme is being compiled.

4) Alonsa Conservation District

The overall resource management scheme for the Alonsa Conservation District has been completed and approved by the Board, Conservation Districts Commission and the Minister. Public information meetings were held prior to approval of the scheme. An outdoor recreation report for the District has been completed. Three feasibility studies involving drainage improvement were completed. A multi-disciplinary feasibility study involving the Portia Complex is underway.

5) Cooks Creek Conservation District

The Branch is assimilating all pertinent data for the Cooks Creek Conservation District scheme. A study to examine the cost of providing flood protection to the Village of Dugald was completed.

(C) Provincial Flood Damage Reduction

Through the application of Provincial Land Use Policy No. 11, the Province attempts to control development in areas subject to flooding, erosion, bank instability, landslides and subsidence. During 1983/84 approximately 1030 subdivision applications were reviewed and input was provided for six planning documents. Thirty draft planning documents and 50 zoning by-laws were reviewed.

Under Section 494.09 of the City of Winnipeg Act, the Minister may make an order varying the floodproofing criteria established by Manitoba Regulation 170/81. Thirty-eight applications for variances were processed during the year.

Water Investigations

(A) Hydrology

(1) Hydrologic Monitoring

Financial and technical input was provided to the federal government under the terms of the Canada-Manitoba Agreement for Water Quantity Surveys for operation of 310 hydrometric stations. A further 127 hydrometric stations were operated by the Branch for runoff monitoring and to facilitate activities such as flow forecasting and operation of provincially controlled water control structures.

(2) Hydrometric, Hydrologic and Hydrometeorological Information

Isohyetal maps of storm precipitation were prepared and distributed following each significant storm. Water level and streamflow data for 31 lakes, 29 rivers and seven reservoirs were compiled and distributed weekly to several hundred users. Information pertaining to climatology and hydrology was prepared and supplied on request.

(3) Flow Forecasting

During the 1983 spring runoff period, daily forecasts of peak stages were prepared for various points along the Red, Assiniboine and Souris Rivers and for eleven streams from the Whitemud River northward to the Swan River, where a very high runoff had been predicted.

Throughout the spring and summer, inflow forecasts were prepared for various lakes and reservoirs where control structures are operated by Manitoba.

During February and March, 1984, spring flood outlooks were prepared for the Red, Assiniboine and Souris River watersheds. Due to the low spring runoff potential, forecasts were not prepared for many of the smaller watersheds, lakes and reservoirs where this is usually done. However, isohyetal maps of the spring runoff potential were prepared in early and late March for all of Manitoba to facilitate the planning of water conservation procedures such as the operation of water control structures, pumping of water from ditches into dug-outs.

(4) Canada-United States Joint Prairie Snow Cover Study

Analysis of the results of this experiment continued, and although no additional snowcover data was collected because of insufficient snowcover, some flight lines were flown in southeastern Saskatchewan to obtain information on background radiation. This is required in order to determine the total "snowcover plus soil moisture" estimate during the winter.

(B) Groundwater

During the year, two new stations for obtaining groundwater information on changes in water level and water quality were established. This brings the total number of groundwater monitoring stations in operation to 520. More than 260 written appraisals defining groundwater availability and pollution hazard were prepared for specific locations. Reports defining groundwater conditions were prepared for specific locations. Reports defining groundwater conditions were prepared for three planning districts.

Thirty-five water supply investigations to develop groundwater sources for parks, northern communities and rural municipalities were completed. Seven watershed investigations were carried out to establish effective methods of controlling groundwater seepage in agricultural drainage systems. An investigation was also carried out to establish the feasibility of using a saline aquifer as a disposal site for saline waste water.

Regional Water Management

There are seven regions in the Province, each being serviced by a Regional Water Manager. However, the Eastern and Northeastern regions have been combined under one Regional Water Manager as have the Western and Northwestern regions. The other regions are the Interlake, Southeastern and Southwestern.

Summary of Water Control Works 1983/84

Program	REGION					Total
	Interlake	Eastern/ Northeastern	Southeastern	Southwestern	Western/ Northwestern	
Flood Damage Reduction	$ 498,525.18	$107,116.94	$ 422,250.91		$ 18,691.25	$1,046,584.28
Land Drainage Maintenace	618,328.25	272,207.58	1,061,963.38	$22,748.55	671,010.84	2,646,258.60
Land Drainage Reconstruction	310,800.06	250,690.09	396,230.20		151,180.23	1,108,900.58
Drainage Development					71,462.71	71,462.71
Water Allocation		6,459.97	37,238.73	22,685.58	68,939.11	135,323.39
Water Development Agreement			13,237.50		6,466.53	19,704.03
Bridge Replacement	31,821.23	94,447.36	223,417.50		75,101.49	424,787.58
Value-Added Crops Production Agreement		27,814.14	972,691.77			1,000,505.91
Total	$1,459,474.72	$758,736.08	$3,127,029.99	$45,434.13	$1,062,852.16	$6,453,527.08

Canada-Manitoba Flood Damage Reduction Agreement

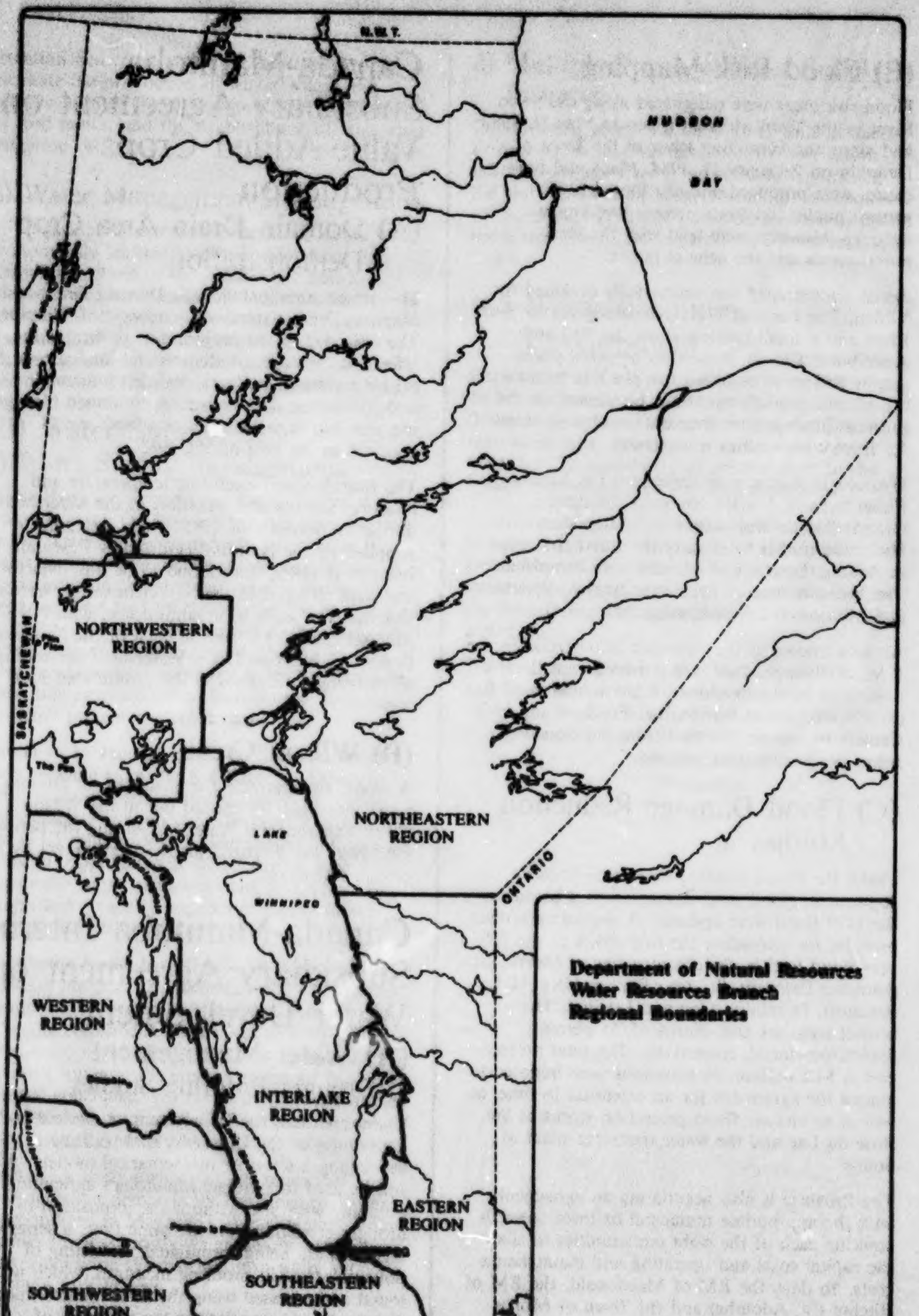
(A) Flood Forecasting Agreement

Phase one of the Canada-Manitoba Flood Forecasting Agreement was completed. A summary report was submitted to the Steering Committee of the Canada-Manitoba Reduction Program. A Forecasting Centre was established to perform studies and to apply flow forecasting procedures under the Agreement. The Centre consists of two professional engineers and one technologist hired under the Agreement, in addition to three regular staff positions directly involved in flow forecasting.

The major component of Phase One was a Pilot Project conducted in the Boyne River watershed to determine what runoff model would be most suitable for application in the Red, Assiniboine and Souris River watersheds in Manitoba. Of the three models tested, the Hydrologic Simulation Program —Fortran (HSPF) model was selected for application under Phase Two, based mainly on its rigorous representation of physical processes and on its somewhat superior performance.

Other activities under Phase One included studies to determine suitable channel routing procedures for tributaries and for major river channels, and studies to determine suitable field instruments and data transmission methodologies for real-time hydrometeorological data acquisition.

Phase Two of the Agreement was approved and work began toward application of the HSPF model on selected tributaries of the Red, Assiniboine and Souris River watersheds. Phase Two is scheduled to extend until March, 1986.


N.W.T.
HUDSON
BAY
NORTHWESTERN REGION
SASKATCHEWAN
The Pas
LAKE
WINNIPEG
NORTHEASTERN REGION
ONTARIO
WESTERN REGION
INTERLAKE REGION
EASTERN REGION
SOUTHEASTERN REGION
SOUTHWESTERN REGION
Brandon
Portage la Prairie
Winnipeg
U.S.A.

Department of Natural Resources
Water Resources Branch
Regional Boundaries

(B) Flood Risk Mapping

Flood risk areas were designated along the Swan River in the Town of Swan River on May 11, 1983 and along the Vermillion River in the Town of Dauphin on February 15, 1984. Maps and brochures were produced and distributed to the general public and to numerous government agencies. Meetings were held with the local governments and the general public.

Aerial photography was successfully obtained for Virden, The Pas and Winnipeg (along the La Salle River and a small portion along the Red and Assiniboine Rivers). A new set of aerial photographs had to be obtained for The Pas because the ground controls could not be located on the previous photographs. Preparation of base maps for these communities is underway.

Hydrologic studies were completed for Arborg, Fisher Branch, Lorette, Riverton, Gladstone, Grande Pointe, Westbourne and Minnedosa. Hydraulic studies to identify the flood risk areas in Arborg, Lorette and Morden were complete. The hydraulic studies for Fisher Branch, Riverton and Minnedosa are continuing.

An area known as the Riverdale Subdivision in the R.M. of West St. Paul was provided with flood protection by the developer of the subdivision. An exchange of letters between the Province and Canada to remove this area from the floodway fringe designation was initiated.

(C) Flood Damage Reduction Studies

Under the Flood Damage Reduction Studies Agreement, flood stage-damage curves based on the 1979 flood were updated. A special agreement provides for upgrading the ring dykes to the 100 year flood level in the communities of Morris, St. Adolphe, Emerson, St. Jean Baptiste, Brunkild, Rosenort, Dominion City and Letellier. The project costs are cost-shared 45/55 percent, federal/provincial, respectively. The total project cost is $4.5 million. Negotiations were initiated to amend the agreement for an extension in time, as well as to include flood protection works at Ste. Rose du Lac and the water treatment plant at Souris.

The Province is also negotiating an agreement with the appropriate municipal or town councils covering each of the eight communities to share the capital costs and operating and maintenance costs. To date, the RM of Macdonald, the RM of Ritchot (St. Adolphe) and the Town of Morris have signed Agreements.

Canada-Manitoba Subsidiary Agreement on Value-Added Crops Production

(A) Domain Drain Area Crop Demonstration

The project area includes the Domain Drain and Manness Drain watersheds southwest of Winnipeg. The objective of the project is to determine the effects of drainage installation and land use on the runoff regime of the area. Rainfall information and streamflow data collection continued through the year. No major rainfall or runoff events occurred in the area during 1983.

The Branch tested electronic temperature and humidity sensors and recorders in the watersheds during the summer of 1983. These instruments, supplied by the National Hydrologic Research Institute (NHRI), were found to be unsatisfactory and were returned to the Saskatchewan Research Council. The Branch, in conjunction with NHRI staff selected a field plot in each of the Domain Drain and Manness Drain Watersheds for testing of hydrologic processes in the unsaturated root zone.

(B) Wilson Creek

A report summarizing the results of all groundwater investigations carried out in the Wilson Creek Experimental Watershed during the period 1965-1980 was prepared for the Department by a private consultant.

Canada-Manitoba Interim Subsidiary Agreement on Water Development

(A) Water Management

1) Drought Proofing Studies

Under contract, the Department of Agricultural Economics of the University of Manitoba is developing a series of mathematical models which will be used to simulate Manitoba's agricultural economy with and without the imposition of drought conditions. At the same time, a series of scenarios are being formulated, consisting of potential drought proofing measures, which will be tested and assessed using the mathematical models. Among these scenarios are the adoption of farming practices which could lead to improved soil moisture conditions through the greater retention and conservation of snow cover to facilitate the production of winter wheat, the subsidization of forage transport, the establishment of feed banks, and the establishment of large-scale irrigation projects.

2) Water Management Investigations

Investigations to determine whether it would be economically feasible to divert water from the Assiniboine River to the Assiniboine South-Hespeler area are continuing. Activities include the economic evaluation of the irrigation project, an assessment of the impacts of the project on various aspects of the environment, and studies into the costs of the principal engineering works.

(B) Water Supply

1) Water Supply Investigations

Boyne River — A report estimating future water demands along the Boyne River has been prepared by the Water Resources Branch. In addition, a report outlining the most suitable alternatives for alleviating present water shortages is presently being finalized by PFRA. The alternative proposed by PFRA is a fixed-crest rock-filled dam to create a storage reservoir in the Boyne River upstream of Carman. As well as providing water for upstream users, this proposal would increase the Town of Carman's present winter shortage.

Altona — In January, 1984 the construction of a water pipeline from the Red River to Altona to fulfill municipal and industrial needs of Altona and vicinity was approved. The current estimated cost is 1.5 million dollars. The project will include a pipeline approximately 22 kilometres long from a proposed water treatment plant in Letellier to Altona and a pipeline and water supply intake from the Red River to Letellier.

Assiniboine North Irrigation — A proposal for irrigation north of the Assiniboine River between Brandon and Portage la Prairie has been included under the Agreement. PFRA has recently completed a report which contains cost estimates of providing water to the area. A review of this proposal concluded that no further benefit studies be undertaken because of the high cost of supplying irrigation water to this area.

Rivers — A study identifying the municipal and industrial water demands for the Town of Rivers was completed in May, 1983. A preliminary report indicates the least costly water supply alternative involves replacing the existing town water supply dam by a rockfill weir.

2) Multiple-Purpose Water Supply Projects

Construction of the La Salle River Enhancement Project which involves diversion of water from the Assiniboine River is expected to commence in the early summer of 1984. The major components of the project are three pumping stations to divert water into the La Salle River, Elm River and Mill Creek.

(C) Water Resource Development

Exploratory drilling associated with aquifer definition investigations was completed for the Southern Interlake Region including the Selkirk map sheet area. Preparation of a set of maps outlining the availability of groundwater in the Virden map sheet area was also completed.

Pumping tests associated with aquifer capacity investigations were completed for the Assiniboine Delta Aquifer. A preliminary assessment of the water supply capacity of the Glenora Aquifer and the Assiniboine Delta Aquifer was also completed.

Water quality characteristics associated with aquifer enhancement investigations were established for the La Salle River as part of the Eli Aquifer Enhancement Project.

Engineering and Construction Branch

Responsibilities

Provides engineering, construction supervision, contract management and technical support services to the Department, municipalities, conservation districts and other government agencies; through the Conservation Districts authority, provides accounting, administrative and purchasing services to conservation districts; operates all flood control works under provincial jurisdiction during flood emergencies, maintains flood fighting plan, coordinates all flood fighting and assesses all municipal claims in respect to flood fighting costs and restoration works.

Activities

The Branch has been organized into three distinct sections: Contracts and Administration, Technical Support and Regional Engineering. The Branch provided a variety of services and conducted, on behalf of the Department, a multitude of projects valued in excess of ten million dollars. In general, capital works were completed by contracts obtained through public tender, while maintenance works were conducted by equipment rental and day labour.

The Branch has initiated the development of a five-year automation plan which will introduce electronic survey instruments, computer-aided design and draughting and word processing equipment to the Branch. This plan will help to maintain a high-quality service without increasing staff numbers.

As well, a study was initiated to determine the most effective methods of providing services to other clients. Generally, professional engineers in the Branch carry out design activities in structural, hydraulic, water supply and sewage disposal disciplines. Expertise in the electrical/mechanical field is obtained through engineering consultants. Consultants are also used in overload situations and for studies where time and very specialized are of the essence.

Contracts and Administrative Services

The Contracts and Administrative Services Section provides all basic administrative services to the Branch and provides financial commitment, expenditure control and cost reporting services to the resource branches in respect of projects carried out by the Branch.

Contracts Administered 1983/84

Works Contracts	42
Consulting Engineering Contracts	3
Hourly Rental Agreements	270

Development and updating of construction specifications was continued, incorporating the use of Manitoba materials. Various studies were undertaken in an effort to optimize the use of limited human and financial resources, primarily through the introduction of computer technology.

Technical Services

The Technical Services Section provides design and consulting engineering services for the Department and other departments and agencies. In addition to the design of standard projects, several projects of a unique or innovative nature were carried out during 1983/84.

Designs were developed for a pilot bridge project using glue-laminated Manitoba pine beams. The design has proven successful and will be incorporated in future projects.

A design was developed for a fishing pier for the handicapped on the Assiniboine River at the Portage Diversion outlet, thus adding another dimension to a flood control work of this nature. The pier was specifically designed for wheelchair access and has proven very popular and has been well used by the public. Similar installations will be considered for the future.

A fish ladder was constructed on the Fairford Dam using Manitoba timber and employing an existing bay of the dam. The design was such that the ladder would function under different tailwater conditions. The fishway incorporated counting bays with an additional flume to create an attraction for fish. The works were constructed so as not to impair the ability of the dam to control water flows.

Having been aware of fingerling losses in conventional rearing practices, Branch personnel suggested using existing facilities for this purpose. As a result, a pilot project was undertaken creating a rearing pond in the Assiniboine River Diversion by utilizing an existing gradient control structure. This project proved very successful and 400,000 fingerlings were released into Lake Manitoba. As a result, similar projects are being considered for the Greater Winnipeg Floodway and now-defunct wild rice paddies on the Brokenhead River.

This new concept has greatly reduced the capital expenditure that would be needed for the design and construction of conventional rearing ponds.

Technical Services Section provided designs for other Government Departments and Agencies such as sewage lagoons for Manitoba Water Services Board, water and sewer systems at St. Norbert Park for the Department of Culture, Heritage and Recreation. The materials testing laboratory of Technical Services Section did considerable testing for the Department of Highways and Transportation and the Department of Environment & Workplace Safety and Health.

Regional Engineering Services

A) General

Regional Engineering Services provides a variety of engineering services to other branches of the Department and to other agencies. These services include program management, construction supervision, field surveys and investigations and technical advice.

During 1983/84 works programs and projects, including maintenance and construction, supervised by the Branch on behalf of client branches and agencies totalled approximately 10 million dollars.

BRANCH	EXPENDITURE
Fisheries	$ 100,600
Forestry	870,400
Parks	1,029,900
Water Resources	6,429,700
Wildlife	52,300
Conservation Districts	1,749,300
Other	13,600
TOTAL	$10,245,800

B) Eastern Region

Various surveys were conducted for the Cooks Creek Conservation District, local government districts, municipalities and the Water Resources Branch. In addition to maintenance work on provincial waterways and flood control works, the Region replaced 11 major drain crossings and completed excavation projects on the Aubigny Drain, Lafond Drain, South Lateral Drain and the west side of the Ste. Adolphe dyke.

A number of projects were conducted on behalf of the Parks Branch including completion of Beresford Lake campground, replacement of electrical service at Dorothy Lake trailer village and completion of sewer and water services to the Grand Beach Hotel and Park Administration Building. The Falcon Lake water distribution system was upgraded. A sewer and water system for the Falcon Lake trailer village was completed.

On behalf of the Forestry Branch, two greenhouses and two shade frame structures were constructed at Hadashville.

C) South Central Region

Three earthwork contracts were completed under the General Development Agreement (GDA) in the La Salle River Area for the reconstruction of 22 kilometres of the Upper Bryson System. Work will continue within the drainage area in 1984.

On the Roberts-McTavish drainage system, a second project in the Morris River area under the GDA, four culvert crossings and one drop structure were installed. In addition, 4.5 kilometres of the outlet channel downstream of Section 20-6-2E and through PTH #75 was regraded and sterilized.

Five crossings were replaced under the Bridge Replacement Program: one timber bridge, three concrete low-level crossings and one culvert crossing.

Agreement between the Province and the Rural Municipality of MacDonald resulted in activity beginning on the Brunkild dyke. Brunkild is one of the five Red River Valley towns in the South Central Region. The right-of-way was purchased and one gravity outlet was installed.

For the Elie Aquifer Enhancement Experimental Project, pumps were set up to divert water from the La Salle River into the gravel pit northeast of the village. This project is on hold until quality of water has been checked. This project is being conducted by the Water Resources Groundwater Section.

The South Central Region received 40 municipal requests for service, as well as 15 from Water Resources, one from Parks and one from Cultural Affairs.

D) Southwestern Region

A major portion of the workload was undertaken on behalf of the Turtle Mountain and Whitemud River Conservation Districts. This work included an extensive gully stabilization and grassed waterway program. Preliminary surveys were completed for a combination flood control and water storage dam on Dooley's Coulee, in the Turtle Mountain Conservation District. This is the first major water control work undertaken by the board of this district.

In the Whitemud River Conservation District the preliminary surveys and right-of-way purchase were completed on a six year program to construct a water conveyance system on the Big Grass River from Waldersee to the Big Grass Marsh.

Parks Branch projects included construction of a new shower-washroom building at Rivers Park, completion of water treatment facilities at the Peace Garden and construction of a boat launch at Cornwallis Wayside Park.

The Water Resources program included maintenance of Provincial Dams and minor maintenance to Provincial Waterways outside the Conservation District boundaries.

E) Western Region

Water Resources Branch activities involved maintenance of provincial waterways within the region as well as operation and maintenance of all provincial dams. This included operation of the pumping stations in the Pasquia Project. A stoplog control was installed on the Steep Rock Lake Dam.

Construction activities included reconstruction of several drains in the Pasquia Project, completing the drainage improvement program in Polders 1 and 2 and preliminary work toward the reclamation of agricultural lands in Polder 3. The construction of Silent Creek was completed.

Two major culvert installations were completed on the Craigford Drain and Maple Creek under the Bridge Replacement Program.

Surveys were undertaken for proposed drainage improvement program in Polder 3 of the Pasquia Project and flood protection for Ste. Rose du Lac.

Engineering services were provided to the Turtle River and Alonsa Conservation Districts. Major projects included the Kergwenan Drain, Brunel Drain, Hansen Creek, Crawford Creek, Chotka and Oak Drains in the Turtle River Conservation District and the North Leifer and Lonely Lake Outlet in the Alonsa Conservation District.

Development of the Clearwater Lake Nursery continued with the construction of one shade frame building, one service building and three greenhouses. One additional greenhouse was partially completed and an office building started in 1982/83 was completed.

On behalf of the Parks Branch, a water pressure system and trailer dump station were installed at East Blue Lake. At Bakers Narrows, plumbing and electrical work on the treatment plant was completed, the sewage lift station was partially completed. Sewer and water expansion to the new Rainbow Beach campground installed in 1982/83 was completed.

F) Interlake Region

Reconstruction activities included projects on Ross Creek, Swan Lake Drain and East Branch Sturgeon Creek. Extensive surveys were conducted on the Washow Bay, Icelandic River, Omands Creek and the Dennis/Fish Lake areas. Normal location and water level surveys were also supplied to Water Planning and Groundwater Sections.

The Portage Diversion was severely tested in the spring of 1983 by a combination of ice jamming and flooding. As a consequence of this event, the Branch retained consultants to review operational procedures and structure performance under such exceptional conditions.

Parks Branch activity during the year included a complete reconstruction of the Portage Spillway Wayside Park. At Hecla Island, a contract was initiated for a new campground shower building. A major erosion control project was completed on Lake Manitoba at St. Ambroise while smaller projects were undertaken at Grindstone Park and Lundar Beach.

Wildlife Branch maintained a heavy commitment to program in the Oak Hammock Marsh. As a result, Engineering and Construction staff surveyed, designed and produced plans for three water supply/discharge channels, one major control structure and a number of smaller water control structures. Engineering services were also provided on a $300,000 cross-dyke funded by Ducks Unlimited.

A number of projects were completed for the Wood Bison re-establishment site at Waterhen Lake. Work included fencing layout, road construction and road access improvement.

Services provided to Fisheries Branch centered around construction of a new fishway at the Fairford Dam. Regional staff also provided engineering support for the experimental Walleye rearing project established on the Portage Diversion.

Forestry Branch requests for engineering assistance in involved preliminary evaluation of a forest road system for the Chitek Lake area, updating of cost estimates for the Kinwow Bay access, and provision of a material package for a project at Lake St. George.

Fisheries Branch

Responsibilities

Develops and implements fisheries management programs designed to maintain or enhance fish populations in the province; monitors the effects of fishing and habitat alterations on fish populations; operates and administers the provincial fish hatcheries to increase and/or sustain fish resources in Manitoba; allocates and administers the fishery resource to maximize returns to Manitobans and administers the Northern Fishermen's Freight Assistance Program.

Commercial Fishing

Commercial fish production was down 22% from the previous year. The most significant reductions occurred in the summer when major decreases took place in pickerel, northern pike and whitefish production. Much of the decline can be attributed to the weather. A later than normal spring breakup resulted in a slow start to the season; then the weather turned very hot. As a result, catches declined and flesh-spotting was evident in some pickerel and sauger. Flesh-spotting is a quality problem occurring in live fish and is a result of hot weather.

During the winter season, production levels were similar to the previous year, except for mullet and sauger. Because of the loss of markets, mullet production decreased by 1.4 million kilograms. On the other hand, sauger production was up, both summer and winter, with deliveries up 50% over the previous year.

Unfavorable weather on the Great Lakes kept the Freshwater Fish Marketing Corporation's (FFMC) major competitors out of production. As a result, markets for pickerel and export whitefish were buoyant and winter fishermen received some of the highest prices in recent years. The FFMC ended the year on a profitable note.

The Northern Fisherman's Freight Assistance Program (NFFA) has helped many marginally viable commercial fishing operations in the north to continue. Payments of more than $200,000 were made to 567 commercial fishermen for the 1983 summer season. Payments for the winter season of 1983/84 were made to 160 fishermen and totalled more than $44,000. The effectiveness of the NFFA program was reviewed during the past year. As a result, recommendations to improve the program's operations have been developed and should be in effect for the winter season of 1984/85.

A survey of Lake Winnipeg commercial fishermen was undertaken by a consultant to objectively assess the concept of transferable individual quotas as an allocation alternative for selected Lake Winnipeg commercial fishing communities. The consultant's report recommended that this alternative licencing system be implemented for the 1984/85 fishing seasons on Lake Winnipeg except in the community areas of Grand Rapids, Poplar/Big Black River and Berens River, thus replacing the present "point" system of licencing.

The Lake Winnipeg Licence Review Board, composed of commercial fishermen and Department representatives, met prior to each season on Lake Winnipeg and heard 23 licence eligibility appeals. The Board's recommendations were forwarded to the Minister of Natural Resources.

Regular meetings continued with the Lake Winnipeg Commercial Fisheries Management Advisory Board, the Lake Winnipegosis Commercial Operators and Fishermen's Association and the Lake Manitoba Commercial Fishermen's Association. These organizations provide a means for commercial fishermen to contribute to the management of the fisheries.

Fisheries Enhancement

The Garrison Joint Technical Committee of U.S. and Canadian members was formed to advise their respective governments on the continued development of the Garrison Diversion Unit. Fisheries personnel participated in the Biota and Fisheries Task Force of the committee and assisted in updating information relating to interbasin transfers of fish within the Garrison project area and in assessing new plans for a fish screen to prevent such transfers.

The first year of an agreement with Ducks Unlimited for a two-year study of fish resources in the Saskeram Marsh area was completed. Fish movements into and out of the marsh were monitored at Bracken Dam from break-up to freeze-up. This study was prompted by recent large winterkills of fish in Saskeram Marsh. Principal objectives of the study are to determine whether the Saskeram Marsh is significant as a supplier of fish to the Saskatchewan River. If it is, the study will determine means of preventing or reducing winterkill problems.

Fish sampling on eight lakes in the Thompson area was initiated in 1983 under the Canada-Manitoba Mercury Monitoring Agreement. The objective of this sampling is to determine the level of mercury contamination in local fish popula-

Manitoba Commercial Fishing Production (Round kg), Initial Value, and Employment (Licenced Fishermen Plus Hired Men) Since 1976-77[1]

Year	Northern Lakes kg	Northern Lakes $	Lake Winnipeg kg	Lake Winnipeg $	Lake Manitoba kg	Lake Manitoba $	Lake Winnipegosis kg	Lake Winnipegosis $	Other Lakes kg	Other Lakes $	Manitoba Total kg	Manitoba Total $	Total Employment
1976-77	3,087,550	1,779,900	4,497,500	3,947,750	1,059,850	722,950	823,650	347,550	1,228,000	769,500	10,696,550	7,567,650	2,953
1977-78	3,418,800	2,112,300	4,764,950	4,756,250	1,726,150	510,400	2,013,900	715,450	1,286,050	713,850	13,209,850	8,808,250	3,170
1978-79	2,915,500	1,758,700	4,949,100	4,529,950	1,535,500	566,650	2,462,000	753,400	1,577,650	983,250	13,439,750	8,591,950	3,161
1979-80	3,679,500	2,505,350	5,258,100	5,611,300	2,921,450	2,120,450	2,926,000	1,073,800	1,846,400	1,485,550	16,631,450	12,796,450	3,213
1980-81	3,474,300	2,625,850	5,652,800	6,932,900	2,330,400	1,677,700	3,172,650	972,100	1,816,100	1,690,750	16,446,250	13,899,300	3,659
1981-82	2,888,150	3,069,750	5,929,100	9,231,800	2,637,850	2,271,400	1,873,250	862,600	1,320,150	1,645,950	14,648,500	17,081,500	3,767
1982-83	2,732,850	2,252,630	5,446,900	6,963,750	3,290,800	1,826,000	2,550,350	1,096,910	1,446,900	1,235,770	15,467,800	13,375,060	3,826

(1) Commercial fishing statistics were not available in time to be included in this report. However, this information may now be obtained by contacting the Fisheries Branch, Manitoba Department of Natural Resources.

Manitoba Commercial Fishing Production (Round Weights kg) by Area and Initial Value by Species 1982-1983.[1]

Species	Northern Lakes		Lake Winnipeg		Lake Manitoba		Lake Winnipegosis		Other Lakes[2]		Total Production			Total Value		
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Total	Summer	Winter	Total
Whitefish	815,150	112,850	852,950	719,200		43,900	29,600	46,250	104,700	131,650	1,802,400	1,053,850	2,856,250	1,234,350	1,143,000	2,377,350
(Roe)[3]	(450)								(800)		(1,250)		(1,250)	(3,500)		(3,500)
Pickerel	784,800	66,400	1,857,800	172,600		516,600	283,850	40,350	382,750	115,250	3,309,200	911,200	4,220,400	5,132,900	1,503,050	6,635,950
Sauger	100	250	921,350	379,750		185,250	300	250	150	700	921,900	566,200	1,488,100	1,305,050	920,500	2,225,550
Pike	608,450	128,850	285,250	57,000		366,650	153,700	586,350	104,550	383,550	1,151,950	1,522,400	2,674,350	466,200	699,000	1,165,200
Tullibee	77,050	15,550	100	100					75,300	21,250	152,450	36,900	189,350	54,400	18,000	72,400
Trout	42,450	450									42,450	450	42,900	25,650	400	26,050
Mullet	23,050	45,650	2,650	117,850	568,600	1,185,200	716,700	622,250	2,100	121,100	1,313,100	2,092,050	3,405,150	179,650	394,350	574,000
Goldeye	3,600	50	350				3,150	750	50	550	7,150	1,350	8,500	3,720	880	4,600
Perch	350	350	29,900	8,800		63,000	50	1,400	100	2,450	30,400	76,000	106,400	41,450	133,300	174,750
Carp			7,550	30,900	340,750	20,850	3,600	61,750		700	351,900	114,200	466,100	66,600	20,050	86,650
Maria								50				50	50		10	10
Sturgeon	7,450										7,450		7,450	31,350		31,350
Bass			Tr								Tr		Tr	Tr		Tr
Catfish			1,850	950							1,850	950	2,800	850	350	1,200
Total	2,362,450	370,400	3,959,750	1,487,150	909,350	2,381,450	1,190,950	1,359,400	669,700	777,200	9,092,200	6,375,600	15,467,800	8,542,170	4,832,890	13,375,060

(1) Commercial fishing statistics were not available in time to be included in this report. However, this information may now be obtained by contacting the Fisheries Branch, Manitoba Department of Natural Resources.

(2) Includes Beaver Dam (53°04' x 99°25'), Buffalo, Cedar Dauphin, Dog (51°02' x 98°31'), Goldeye (51°29' x 97°23'), Goose (52°24' x 98°45'), Jackpine, Lonely, pelican, Proulx, Red Deer, Sisib, Spence (51°33' x 99° 35'), Steeprock, St. Martin, Swan, Waterhen, William

(3) Figures for roe are not included in table totals. Tr = Trace (small amount)

tions and its implications to human health. Mercury monitoring will be continued in the area in 1984 and 1985.

Construction of the Fairford Dam fishway was completed in the 1983/84 winter season. Brief monitoring of the fishway revealed that the structure permitted walleyes and other fish to pass successfully over the dam.

A study of the effects of land use activities on the hydrological and fisheries characteristics of the Valley River was completed. This study showed the dramatic impact of siltation and low water on the survival of walleye eggs during spawning and incubation phases of their life history.

Manitoba Hydro funded a study of the effects of the Jenpeg hydro-electric dam on the fish population of Cross Lake. Results of the study were published in the Canada Journal of Fisheries and Aquatic Sciences and were also included in a textbook on pollution.

In cooperation with Ducks Unlimited and the Lake Manitoba Commercial Fishermen's Association, Fisheries Branch supplied and stocked pickerel fry in six ponds near Lake Manitoba being managed by Ducks Unlimited for the benefit of waterfowl. The fish were held in these ponds until they had grown to be less susceptible to predation by other fish. The program was extremely successful for a first year effort and approximately 750,000 fingerlings were released into Lake Manitoba by the commercial fishermen in late summer.

Over 500,000 pickerel fingerlings were released into Lake Manitoba from a rearing pond established in the Assiniboine River Diversion near Portage la Prairie. Over one million fry pickerel had been stocked and held in the diversion during the summer until their successful release in midsummer. This experimental stocking program may have application with other water control structures.

Lake Winnipegosis also received particular attention. Eight rearing ponds around the lake were stocked with walleye fry and approximately 127,600 fingerlings were released later in the summer.

The fifth annual Lake Winnipeg fish stock assessment program was completed. These annual assessments are being integrated into a long term study which will provide a system for predicting changes in commercial catches.

Lake inventory reports were completed for Elbow, First Cranberry, Second Cranberry, Third Cranberry, Simonhouse, Sasaginnigak, Charron, Morphee, Ewart, Lynx and Carr-Harris Lakes.

Sportfishing and Tourist Angling

The Catch and Release program was enhanced by the development of a new logo — "Let it Go, Let it Grow". The program encourages anglers to return small fish to the water, allowing time to grow larger for the future.

The "one trophy only" limit on walleye, pike and lake trout introduced in northern Manitoba last year was extended to cover southern Manitoba. The main purpose for this extension was to help ensure a continuing supply of larger fish in southern waters. This program will help provide continued opportunity for trophy angling in this region.

Fisheries Branch, in cooperation with Travel Manitoba, the Canada Department of Fisheries and Oceans and the Manitoba Lodge and Outfitters Association conducted an economic and management survey of the lodge industry. For 1981, this industry consisted of 106 establishments, generated estimated gross earnings of nearly $11.8 million and employed 863 people. Wages and salaries totalled more than $2 million.

A fish tagging program and angling survey to evaluate the effectiveness of catch and release policies and angler catch effort was initiated on Waskaiowaka Lake, a trophy pike lake 125 kilometres northeast of Thompson. A similar study on Nueltin Lake on the Manitoba - Northwest Territories border, indicates that lodge guests spent 6200 hours catching 6500 lake trout of which 5700 (88%) were released. Of 184 trophy lake trout (over 9 kg) caught, 168 were released to allow another angler an opportunity.

Fish Culture

Two permanent hatcheries, three seasonal hatcheries and several mobile operations contributed to hatchery production. On April 2, 1983, the seasonally operated hatchery at Duck Bay on Lake Winnipegosis was destroyed by fire. A site for reconstruction has been selected near the community of Winnipegosis.

Commercial fishing waters were stocked with 69 million walleye fry and 22 million whitefish fry. Approximately 34.5 million walleye fry were stocked in 19 rearing ponds for later release to fishing waters as fingerlings. Approximately two million whitefish fry and 3.7 million walleye fry were supplied to various agencies for experimental purposes and 270,000 eyed lake trout eggs were returned to the waters where spawn was taken.

Angling Licence Sales and Revenue, 1974/75 to 1983/84

	Resident Licences			Non-Resident Licences						Total Licences	
				3 Day Licences			Seasonal Licences				
Year	Number	Fee	Revenue	Number	Fee	Revenue	Number	Fee	Revenue	Number	Revenue
1974/75	137,492	$ 3.00	$378,546.75	7,420	$ 5.00	$35,357.50	24,306	$10.00	$237,630.50	169,218	$ 651,534.75
1975/76	142,254	3.00	391,682.50	8,423	5.00	40,240.00	28,306	10.00	276,691.75	178,983	708,614.25
1976/77	150,020	3.30	458,213.85	9,845	5.50	51,957.50	29,475	11.00	317,603.80	189,340	827,775.15
1977/78	148,289	3.30	452,849.70	9,175	5.50	48,401.25	28,363	11.00	305,800.50	185,827	807,051.45
1978/79	156,553	3.30	477,979.15	10,918	5.50	57,569.75	29,929	11.00	322,571.00	197,400	858,119.90
1979/80	155,790	3.30	475,621.75	9,590	5.50	50,534.25	31,029	11.00	334,312.75	196,409	860,468.75
1980/81	159,584	3.30	487,384.20	8,658	5.50	45,612.50	32,353	11.00	348,565.25	200,595	881,561.95
1981/82	159,233	3.30	486,394.90	8,439	5.50	44,369.50	32,037	11.00	344,723.50	199,709	875,487.90
1982/83	164,384	5.00	741,087.50	3,777	12.00	43,502.50	28,561	20.00	557,353.50	196,722	1,341,943.50
1983/84	157,724	5.00	710,986.50	3,592	12.00	41,346.50	29,852	20.00	582,435.00	191,168	1,334,768.00

Note: Revenue figures are net (less vendor's commission).

Distribution to Sportfishing Waters
From Fish Hatcheries, 1983/84

	Fry	Fingerlings	Yearlings	Adults
Walleye	10,200,00	6,200		
Northern Pike				7,500
Muskellunge		100,000		
Perch				64,500
Smallmouth Bass		45,000		
Largemouth Bass		40,000		
Rainbow Trout			163,600	75,200
Brook Trout			47,800	9,900
Brown Trout			9,800	6,400
Lake Trout		94,500	143,634	
Splake		3,000	75,000	
Cutthroat Trout			11,000	

Other Activities

The trout farming program continued during 1983/84 at the same level as the previous year. About 300 trout farming permits and 30 commercial trout farming licenses were issued.

Bait Fishing Program

Description	1982/83	1983/84
Bait Fish Licences[1]	39	39
Bait Fishing Blocks	264	264
Dealers Licenced	3	5
Bait Fish Produced (Kg)	100,000	120,000
Gross Value	$320,000	$448,000

[1] A freeze was imposed on the expansion of the live bait industry.

Forestry Branch

Responsibilities

Administers the Forest Act; develops commercial harvesting plans for Manitoba's forests; administers timber cutting licensing and measurement; conducts tree improvement and forest genetics studies; coordinates silviculture, reforestation and timber management programs; maintains a forest inventory; develops forest protection programs; conducts Dutch Elm Disease control programs.

Forest Inventory

A major fire outbreak in September in Forest Management Unit 31 of the Lake Winnipeg East Forest Section resulted in volume losses of 2.3 million cubic metres growing on a productive forest area of 45,100 hectares. This represents a loss of eight percent of total softwood volume and five percent of total hardwood volume growing stock. Coupled with major fires which occurred in 1980, overall volume losses to fire represent 13 percent of the total softwood volume and seven percent of total hardwood volume in this forest section since 1979. These losses have required a reduction in the annual allowable cut.

Forest inventory activity in the Aspen Parkland, Mountain and Interlake Forest Sections identified a total of 56.6 million cubic metres of wood consisting of 94 percent deciduous and six percent coniferous species. This merchantable wood volume is located on approximately 19 percent of the land area. Estimates made in the 1950's of wood volumes and forested areas located in this portion of the province indicate 11.0 million cubic metres of wood volume growing on approximately 30 percent of the total area.

Forest Inventory Projects 1983/84

	Area	
	Square Km's	**Square Miles**
Aerial Photography	32,370	12,500
Forest Cover Mapping	51,700	19,960
Air Photo-Interpretation	44,380	17,140
Forest Surveys	43,420	16,760
Area Compilation	25,190	9,730
Area and Volume Statistics	24,000	9,270
Forest Inventory Reports	16,160	6,240
Township Air Photo Mosaics	2,760	1,070

Forest Inventory Reports were completed for Forest Management Unit 11 (Swan River) and 12 (Dawson Bay) in the Mountain Forest Section. A report covering Forest Management Unit 15 (Riding Mountain National Park) was completed to provide a Provincial summary of forest information for this unique area for the first time.

Forest survey crews collected forest measurement data from sample plots established in Forest Management Unit 5 (Neepawa) in the Aspen Parkland Forest Section, Unit 10 (Dauphin) in the Mountain Forest Section, Unit 42 (Arborg) in the Interlake Section and the Units 51 to 57 in the Saskatchewan River Forest Section.

Industry Relations and Development

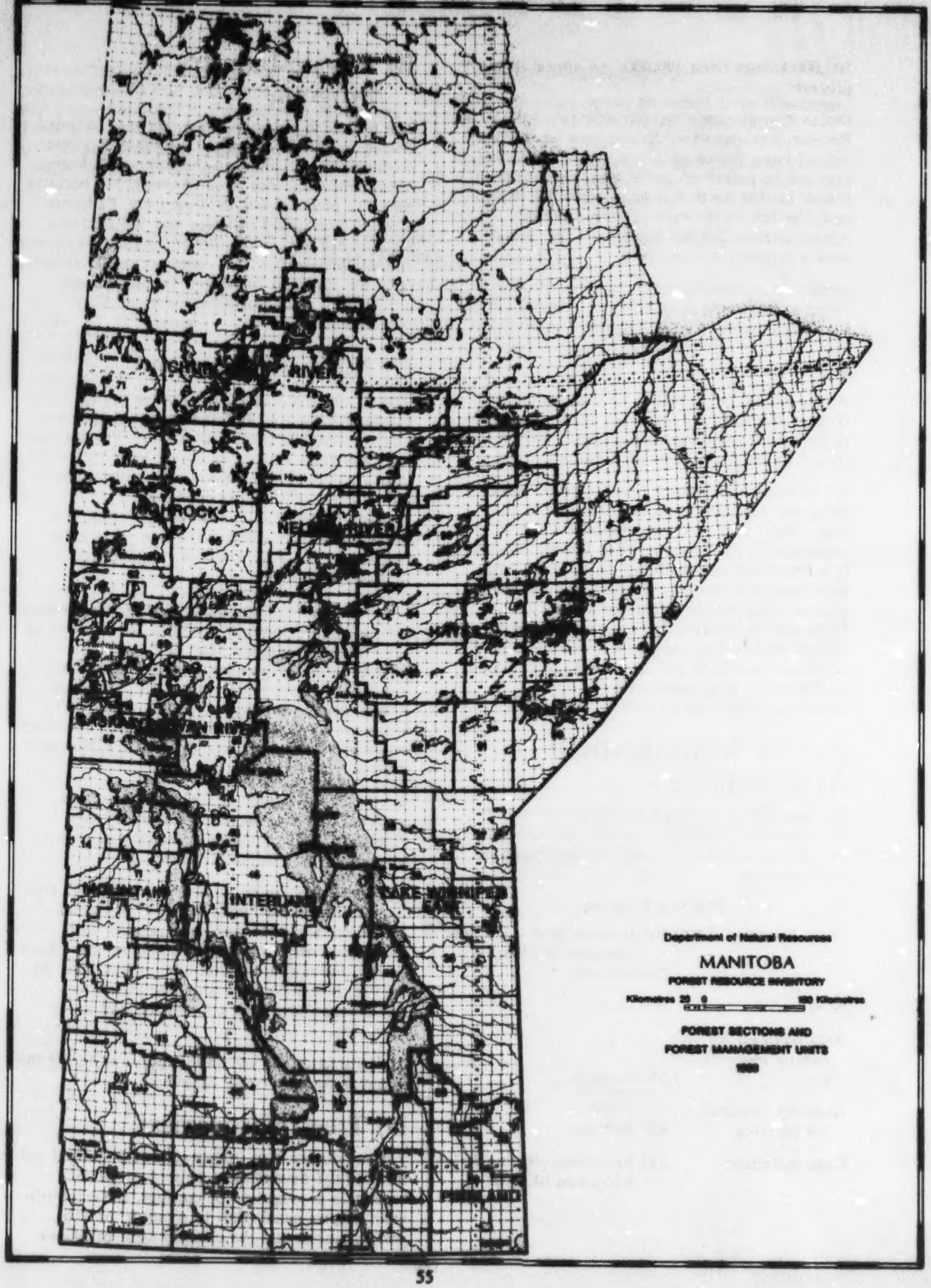
During the year the depressed forest industry showed signs of recovery aided by the low Canadian dollar. The resurgence was strongest in the eastern newsprint and pulping sector, reflected in product price advances and profitable operations.

Solid wood sector advances were at best uncertain despite an improvement in housing starts. Recovery was no doubt impacted by high levels of product inventories. Companies with solid wood components experienced their second and third year of loss operations for their solid wood component portions.

The year marked the end of the successful defense against imposition of countervailing duties on Canadian softwood lumber and other related products entering the United States. Certain segments of the U.S. forest industry petitioned for the duty by reason of alleged subsidies available to Canadian producers and resultant unfair competition. It was decided that while some subsidies existed they were insufficient to trigger imposition of a countervail duty. Canada External Affairs provided the focal point for the anti-countervail defense. The Canadian forest industry mustered its own defense. The federal-provincial Forest Industry Development Committee played a key role in coordinating provincial input including that of the Manitoba Forestry Branch.

This activity resulted in the formation of the Canadian Forest Industries Council. It is made up of 16 industry associations representing more than 90% of the industrial forest users in the country.

The European Economic Community lowered the duty-free import quota on Canadian newsprint to


CHURCHILL RIVER
HIGHROCK
NELSON RIVER
HAYES
SASKATCHEWAN RIVER
MOUNTAIN
INTERLAKE
LAKE WINNIPEG EAST
PINELAND
Department of Natural Resources
MANITOBA
FOREST RESOURCE INVENTORY
Kilometres 25 0 100 Kilometres
FOREST SECTIONS AND
FOREST MANAGEMENT UNITS

500,000 tonnes from 700,000. An appeal is in process.

Discussions are underway regarding Atikaki Park Reserve, a proposed wilderness area on the east side of Lake Winnipeg. Since timber harvesting may not be permitted in the area, and access to timber further north will be affected, an impact could be felt on the existing forest industry. Approximately 279,000 hectares of the reserve area is productive forest land.

Abitibi-Price received approval of its 20-year forest management plan (to 1998 inclusive). It also submitted its second five-year operating plan, a requirement of the agreement for approval.

At the end of 1983, a $125,500 surplus in the forestry renewal fund, resulting from a reduction in the planned tree planting program was returned to the Department of Finance.

A Manitoba and Manfor forest renewal agreement was negotiated and finalized during the year. Under that agreement Manfor accepted responsibility for forest renewal activity previously a Provincial responsibility. In summary the agreement provides that by 1988, 80% of annual cutover areas will be reforested and by 1990, 100% will be reforested. This work is paid for directly by Manfor. Manfor Crown dues were adjusted from $2.47 per cord in 1982-83 to $2.33 in 1983-84 in accordance with the original agreement developed in 1969.

Forest Management

A) Silviculture

The silvicultural program is carried out under four activities: regional programs, private industry, provincial nurseries, and the tree improvement program.

Regional Programs

Trees Planted	3,629,566 bareroot and 1,173,284 container seedlings 1,560 hectares
Area seeded	800 hectares
Area scarified for natural regeneration	3,056 hectares
Area site prepared for planting	827 hectares
Cone collection	352 hectolitres yielding 167 kilograms of seed

B) Private Industry Program

The private industry program this year included only Abitibi-Price. Nearly 1.2 million container seedlings were planted on the company's Forest Management Licence Area. As well, 316 hectares were site prepared for 1984 planting, 87 hectolitres of cones were collected and 988 hectares were treated with herbicides for plantation release and site preparation. All container seedlings came from the Pineland Provincial Forest Nursery grown from seeds extracted from company provided cones.

C) Nursery Operations

The Province has two provincial nurseries; Pineland Provincial Forest Nursery located at Hadashville, 100 kilometres east of Winnipeg and the Clearwater Provincial Forest Nursery located near The Pas. The Clearwater Provincial Forest Nursery was officially opened June 14, 1983. The Pineland Nursery is a combined bareroot and container nursery whereas the new Clearwater Nursery at The Pas produces containerized seedling production.

The Pineland Nursery shipped 3,629,566 bareroot and 1,173,284 container seedlings for planting on Crown land during the year. The ongoing bareroot seedling inventory in the fall of 1983 was 9,999,218 seedlings in two and three year crop rotations. In addition to this, fall seeding projected 6.1 million seedlings. The fall container inventory at Pineland Nursery was 573,250 black spruce.

A total of 1.3 million seeded containers was provided to the Clearwater Nursery by the Pineland Nursery because Clearwater does not have container loading facilities.

Both nurseries, under joint funding through the Canada/Manitoba Forest Renewal Agreement, are undergoing considerable expansion with additional energy efficient greenhouses have been constructed and are operational at this time. At the Clearwater Nursery near The Pas, five greenhouses have been constructed and are in operation.

Both nurseries will continue expansion during the five-year forest renewal agreement.

D) Tree Improvement

The development of improved seed is carried out through the development of seed orchards, vegetative propagation of cuttings, the establishment of provincial trials to monitor growth performances, and the establishment of phenotypes to broaden the base of seed orchard populations. To year end, three seed orchards had been established at the Hadashville nursery. There were one each for black spruce, white spruce, and jack pine in addition to the white spruce one established earlier.

Timber Management

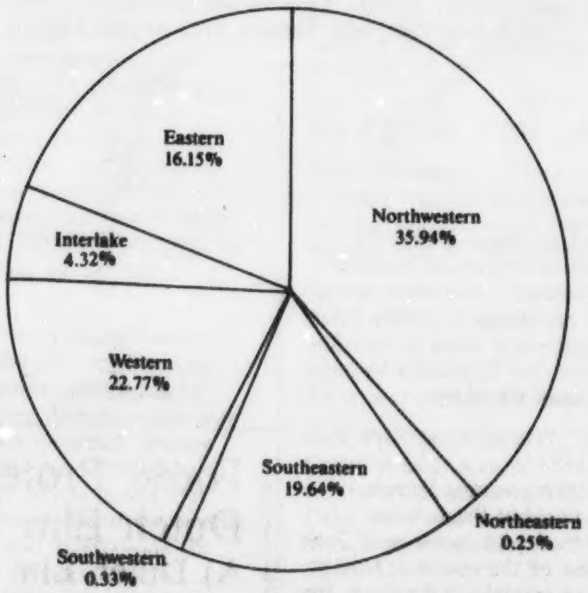
The volume of timber harvested from provincial Crown lands in 1983/84 was 1,500,332 m^3; 1,324,819 m^3 softwood and 175,513 m^3 of hardwood. This represents an increase of nearly 1.5% over the previous year.

Summary of Annual Forest Production by Forest Product (in Cubic Metres)
1979/80 to 1983/84 ending March 31st

Year	Pulpwood		Lumber		Fuelwood		Other		Total	
	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
1979/80	1,124,615	58.0	647,470	33.4	103,716	5.3	64,281	3.3	1,940,082	100
1980/81	1,458,039	62.9	681,876	29.4	95,893	4.1	84,223	3.6	2,319,991	100
1981/82	1,100,921	61.8	535,034	30.0	88,369	5.0	57,754	3.2	1,782,078	100
1982/83	787,879	53.3	518,062	35.1	111,555	7.5	60,596	4.1	1,478,092	100
1983/84	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100

Diagram One

Timber Cut by Departmental Regions 1983/84



Gross Value[1] of the Forest Products Industry to the Manitoba Economy

Year[2]	Logging	Manufacturing		Total
		Primary[3]	Secondary	
1979	$48,257,000	$158,000,000	$173,000,000	$379,257,000
1980	61,803,000	174,000,000	203,000,000	438,803,000
1981	50,765,000	179,000,000	247,000,000	476,765,000
1982	42,944,000	137,000,000	252,000,000	431,944,000
1983	45,000,000[5]	150,000,000[6]	277,000,000[6]	472,000,000

[1] Values of shipments as defined by Statistics Canada.
[2] Fiscal year ending March 31st used for logging Statistics. Calendar year used for manufacturing statistics.
[3] Primary manufacturing includes sawmills and planning mills; pulp and paper mills; and miscellaneous wood factories.
[4] Secondary manufacturing includes sash, door and other millwork; coffin and casket industry; wooden box factories; asphalt roofing manufacturers; and miscellaneous paper converters.
[5] Preliminary estimates (within ± 20%) subject to revision by second quarter, 1985.
[6] Preliminary estimates (within ± 10%) subject to revision by first quarter, 1986.

For 1983/84 Forestry Branch revenue increase from 1.81 million to 2.45 million dollars. The majority of this is attributable to the realignment of the MANFOR dues rates and receipt of the 1983 MANFOR dues payment before the 1983/84 fiscal year end.

Timber permits issued this fiscal year totalled 8174. This is a reduction of 1500 permits from the previous year. This is attributed to the declining interest in the cutting of fuelwood and posts.

Six Timber Sale Allocations changed hands. By March of 1984, there were 230 Timber Sale Allocations in force. However, Timber Permit Allocation assignments number 49, slightly more than 10% of the 427 in force at the end of the 1982/83 fiscal year. This assignment activity is attributed to active timber operators seeking out inactive Timber Permit Allocation holders and noting the penalties for failure to utilize the committed timber volumes in 1985.

A Comparison of Permits, Licences and Quotas on Crown Lands (Including Provincial Forests), 1982/83 and 1983/84

	1982/83	1983/84
Timber Dealers	52	37
Sawmill Licences	144	152
Timber Permits	9,637	8,097
Pulpwood Permits	37	77
Timber Sale Agreements Awarded 1983/84	86	50
Timber Sale Agreements Previously Awarded	240	251
Timber Seizures Recorded	13	15
Allocations in Force on March 31, 1984:		
Timber Sales	236	230
Timber Permits	427	378
Forestry Revenue (Crown Charges)	$1,814,721.31	$2,450,426.53

The 1983 Department spring scaling licence certification course was held at Swan River. Twenty-one candidates took part in the week long course. The field portion of the course is held at two local sawmills where candidates do stack, tree length, or cube scaling. The course is completely in metric units and geared to roundwood volume determination.

Forest Protection and Dutch Elm Disease

A) Dutch Elm Disease Control

The incidence of Dutch elm disease (DED) continued to increase in the wild elm stands of Manitoba in 1983/84. Below normal temperatures in the spring delayed development of disease symptoms and as a result, only 4477 elm trees were sampled during the summer, of which 2383 or 53% were infected. Diseased elms were recorded in six additional rural municipalities increasing the total number of urban and rural municipalities and local government districts involved to 59. This total includes the major centres of Winnipeg, Brandon, Portage la Prairie and Selkirk. The disease is also prevalent throughout the Whiteshell Provincial Park and the Northwest Angle Provincial Forest. New infections were recorded in the R.M.'s of Louise, Roland, McCreary, Odanah, Rosedale and Westbourne.

In contrast, disease incidence remained more or less static in Winnipeg and Brandon where control programs have restricted elm losses to less than one percent in Winnipeg and between one and two percent in Brandon since the arrival of the disease in Manitoba in 1975. This is an enviable record when compared to other centres in North America. Although increased numbers of elms had to be removed, 85% or more of the trees in these centres were located along the riverbanks in wild stands where control procedures are normally less effective.

Year	Winnipeg				Brandon			
	No. Trees Sampled	No. Diseased T.	No. Haz. Trees	Ttl. Trees Removed	No. Trees Sampled	No. Diseased T.	No. Haz. Trees	Ttl. Trees Removed
1981/82	1482	757	514	6827	408	298	527	825
1982/83	2489	1100	728	6365	361	284	675	959
1983/84	1552	1569*	534	7961	209	137	544	1198

Note: The definition of a "Hazard" (Haz.) tree is: any elm tree that is decadent to the extent that it is capable of supporting elm bark beetle breeding activity, making it a hazard to the spread of DED.

* Information provided by the City of Winnipeg.

Across southern Manitoba, approximately 20,000 elm trees were removed in 1983/84 as follows: Province of Manitoba Sanitation crews — 10,835; City of Winnipeg Forestry personnel — 7961; and City of Brandon Parks personnel — 1198.

The number of cost-sharing agreements with municipalities for DED control programs increased from 26 in 1982/83 to 34 agreements during 1983/84. The communities generally carried out the programs on a cost-share basis with the Province of Manitoba. The programs emphasized sanitation, basal spraying, tree replacement, site-specific inventory and development of elm disposal sites. Total expenditures by the Province of Manitoba for agreements in 1983/84 was $429,524.

Research efforts continued with Departmental staff in conjunction with the City of Winnipeg using expertise from universities and other government research agencies. The objective was to acquire reliable local data on which to base program decisions. Emphasis was directed to monitoring seasonal activity of the native elm bark beetle, investigating the status of the smaller European elm bark beetle and determining the persistence and efficacy of the fungicide Arbotect-20S in elm trees following injection.

Dutch elm disease will continue to spread in Manitoba until ultimately all areas with elm populations are affected. To date, the control program has been successful in maintaining a tree mortality rate of less than two percent within urban centres that have control programs in place. However, the potential of a sudden explosion of the disease in these larger urban centres still exists and will continue to exist as long as there is a wild elm population along the major rivers and watersheds in rural areas of the province.

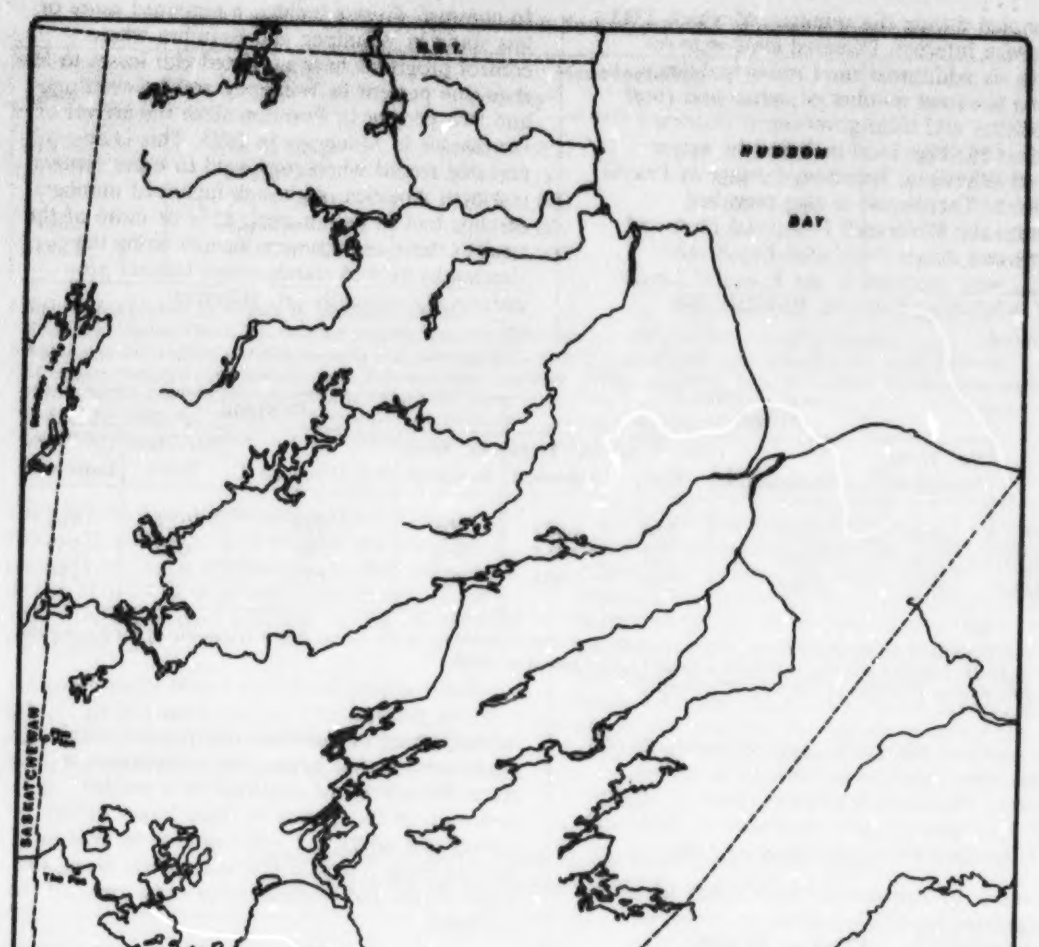
B) Forest Pest Management

Dwarf Mistletoe: Through the Canada-Manitoba Forestry Agreement a commitment of $280,000 per year for five years has been made for the management of this disease.

Spruce Budworm: The budworm infestation persisted at high levels in the Interlake, Whiteshell and east of Lake Winnipeg. Considerable mortality of balsam fir occurred in the Winnipeg River area and in the Saint Lakes area.

Jack Pine Budworm: The infestation began in the Grand Rapids area in 1982 and spread in a northwest direction to Moose and Clearwater Lake areas and southward to the Kawinaw Lake area. Approximately 146,000 hectares were infested.

Forest Tent Caterpillar: Moderate and severe defoliation of trembling aspen by this pest occurred again throughout the Northwestern Region (approximately 600,000 hectares).


N.W.T.
HUDSON
BAY
SASKATCHEWAN
The Pas
LAKE
WINNIPEG
ONTARIO
U.S.A.

Range of Dutch Elm Disease - 1985

White Pine Weevil: This terminal weevil was again very prevalent in jack pine plantations in the Western Region. If repeated attack occurs this pest can become one of major consequence.

Pinewood Nematode: This nematode was isolated from dead jack pine in the Moose Lake area. This organism is suspected to be widespread throughout the province.

Red Pine Needledrop: An impact study was carried out in one, six and 14 year old red pine plantations. Significant damage is expected only in the one-year old stock.

Armillaria Root Rot: Localized infections by this root rot fungus caused significant mortality in red pine plantations in Belair Provincial Forest. An impact study has been initiated.

Nursery Pests: Sanitation removal of infected shelterbelts was carried out at Pineland Nursery to reduce western gall rust to a minimal level. Fungicide applications were carried for the control of Lophodermium needle cast at Pineland Nursery. Sanitation and insecticide application was carried out in Pineland Nursery greenhouses for the control of strawberry root weevil. Sanitation was conducted at Clearwater Nursery to reduce western gall rust and a rust broom of spruce.

Canada-Manitoba Forest Renewal Agreement

During the fiscal year ending March 31, 1984, negotiations between the Department of Natural Resources and the Canadian Forestry Service culminated in the signing of the Canada-Manitoba Forest Renewal Agreement. The agreement, effective from March 15, 1984 to March 31, 1989, is 50/50 cost-shared between Canada and Manitoba and represents a total of 27.1 million dollars to forestry in the province. There are three delivery streams, consisting of 100% Provincial, 100% Federal and shared. Under the terms of the legal document, the province is responsible for delivering the 100% Provincial and the shared portions while Canada must deliver the 100% Federal portion.

A Directorate has been organized to manage the agreement and is co-chaired by the Deputy Minister of Natural Resources, represented by the Director of Forestry for the Province and by the Director of the Northern Forest Research Centre for Canada. Program managers have also been named on both sides of the agreement and they form part of the Directorate as well as coordinate the delivery of projects under each sub-program. The agreement provides for several programs including forest renewal, forest management, research, technology and nursery development and public information.

Jobs Fund Sectoral Project in Forestry

The Manitoba Forest Management Plan 1981-2000, states that before the end of this decade the softwood timber supply in the currently utilized forest sections of Manitoba will not meet the expected demand with the existing level of forest management. The result of taking no action with respect to this situation would be a lowering of the annual allowable cut continually over future years as softwood timber supplies decline. The forest industry in the province would decline at a similar rate.

The level of activity required to prevent such a crisis, when translated into 1984 dollars, represents a 50 million dollar commitment over a five-year period. This increased level of management must be maintained not only for the future five-year period, but continually thereafter to prevent the crisis from occurring.

Of the 50 million dollars required, 27 million is being supplied through the Canada-Manitoba Forest Renewal Agreement. The Province has also signed agreements with the forest industry for another seven million dollars of forest renewal activity over the same five-year period. The remaining requirement of 16 million dollars is being supplied on a year-to-year basis by the Jobs Fund Sectoral Project in Forestry.

This Jobs Fund Project is divided into the same four major program areas as the Canada-Manitoba Forest Renewal Agreement, as follows:

Program A	Forest Renewal
Program B	Intensive Forest Management
Program C	Nursery Development
Program D	Public Info, Administration, Evaluation

Individual projects within each program area are planned and implementation will start during the 1984/85 fiscal year.

Wildlife Branch

Responsibilities

The Wildlife Branch develops and implements management programs designed to ensure that the wildlife resource is passed on to future Manitobans in at least as vigorous state as it was received by the present generation; delivers programs that provide for the subsistence, commercial and recreational use of the wildlife resource; implements programs to alleviate wildlife damage to people and property; and promotes the use of wildlife for scientific and educational purposes.

Wildlife-Based Revenues 1983/84

Hunting Licence Sales		
— Wildlife Certificates	$266,116.50	
— Game Bird Licences	695,774.50	
— Black Bear Licences	88,542.00	
— Replacement Licences	1,070.00	
— Caribou Licences	5,427.00	
— Deer Licences	747,519.00	
— Elk Licences	99,954.00	
— Moose Licences	192,227.50	
— Wild Turkey Licences	1,520.00	
Subtotal Hunting Licences		$2,098,150.50
Commercial Licence Sales		
— Trappers' Licences	$ 27,450.00	
— Fur Dealer Licences	4,525.00	
— Tanners' Licences	75.00	
— Taxidermist Licences	1,350.00	
— Shooting Preserve Licences	300.00	
— Dog Trainer Licences	720.00	
— Game Bird Farm Licences	1,110.00	
— Amphibian/Reptile Licences	815.00	
Subtotal Commercial Licences		$ 36,345.00
Fur Royalties		$ 57,012.00*
Miscellaneous Revenues		$ 12,429.55
Fines from Violations Under the Wildlife Act		$ 53,686.00
Total Wildlife-Based Revenues		$2,257,623.05

*** Based on the fur year, September 1, 1982 — August 31, 1983**

Wildlife Management Programs

(A) Wildlife Education

The Oak Hammock Marsh nature interpretation program continued to grow in popularity as shown by the 3600 visitors who were guided through the marsh by naturalists throughout the year. Approximately 42,000 people visited the marsh, a 10% increase over 1982. A new co-operative nature tour program involving the Canadian Wildlife Service and the Wildlife Branch was established. This new venture saw the development of an inaugural newsletter, now released to local residents and interested visitors three times a year. Recent interviews with visitors have shown that they are extremely pleased with the results of 1982 expenditures on visitor services.

Staff also continued to take groups of interested Manitobans on tours of Narcisse, Souris River Bend and Brandon Hills Wildlife Management Areas. The Narcisse snake dens alone attracted approximately 6000 visitors in 3 weeks during the spring emergence of red-sided garter snakes. In 1983, $5000 was spent on visitor facilities at Narcisse for trail markers, interpretive signs, benches, picnic tables, a washroom and a parking lot.

The 1983 National Wildlife Week Program was sponsored by the Wildlife Branch, the Manitoba Wildlife Federation, the Canadian Wildlife Federation and the Manitoba Naturalists Society. The annual poster and prose contest drew over 2100 entries from schools across Manitoba. Winning entrants received their prizes of binoculars and wildlife books from Natural Resources Minister Al Mackling at a formal presentation at the Winnipeg Centennial Library. Sponsors contributed to the program by organizing a photography contest, and manning exhibits at the Polo Park Shopping Centre and the Brandon Shoppers Mall. Winnipeg Blue Bomber Joe Poplawski was appointed Wildlife Ambassador for National Wildlife Week for the second consecutive year.

Under the Wildlife Awards Program, the prestigious Wildlife Conservation Award was presented to Wild Gobblers Unlimited. Wild Gobblers is credited with the successful introduction of the wild turkey as a Manitoba game bird.

The Wildlife Branch co-operated with the Manitoba Registered Trappers Association in setting up and manning a wild fur exhibit at the week-long Festival du Voyageur. The display attracted over 13,500 visitors.

Manitobans were again offered the opportunity to better their understanding of moose biology and to perfect their moose hunting skills in a Moose Biology Seminar, an annual event co-sponsored by the Wildlife Branch, the Manitoba Wildlife Federation and Labatt's Brewery.

A $1000 grant was provided to the Delta Waterfowl Research Station. This grant enables the station to hire a tour guide to accomodate public demand for more information on the research facility at Delta Marsh.

Hunting Licences Sold, 1983/84

	Fee	Number Sold	Revenue
Game Bird			
Resident of Manitoba	$ 6.00	37,530	$ 207,193
Non-Resident (Canadian)	40.00	1,055	41,739
Non-Resident (Alien)	75.00	5,994	446,842
Wild Turkey			
Resident of Manitoba	10.00	152	1,520
Moose			
Resident of Manitoba	20.00	8,442	165,977
Non-Resident (Canadian)	200.00	5	1,000
Non-Resident (Alien)	250.00	101	25,250
Elk			
Resident of Manitoba	27.00	3,702	99,954
Woodland Caribou			
Resident of Manitoba	27.00	201	5,427
Black Bear			
Resident of Manitoba	12.00	4,061	47,217
Non-Resident (Canadian)	50.00	39	1,950
Non-Resident (Alien)	100.00	394	39,375
Deer			
Resident of Manitoba	16.00	46,510	721,999
Non-Resident (Canadian)	80.00	299	23,920
Non-Resident (Alien)	100.00	16	1,600
Total Licence Sales			
Resident of Manitoba		100,598	1,249,287
Non-Resident (Canadian)		1,398	68,609
Non-Resident (Alien)		6,505	513,067
Total		108,501	$1,830,963
Replacement	variable	292	1,070
Wildlife Certificates	4.00	75,119	266,117
		183,912	$2,098,150

Hunting Licence Sales and Revenue, 1974/75 to 1983/84

Year	Game Bird and Wild Turkey		Big Game and Black Bear		Wildlife Certificates		Total Licences & Certificates	
	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue	Licences Sold	Revenue
1974/75	48,212	$156,109.25	11,627	$ 191,346.50	48,605	$ 99,980.25	108,444	$ 447,436.00
1975/76	48,687	281,261.50	11,606	190,692.00	53,998	109,647.25	114,291	581,600.75
1976/77	56,581	367,888.50	13,231	237,423.25	61,494	124,387.25	131,306	729,690.00
1977/78	56,567[1]	379,400.75	52,381	554,025.50	77,862	157,485.00	186,810	1,090,911.25
1978/79	60,061[1]	402,525.75	55,822	596,778.75	82,267	165,835.25	198,150	1,165,139.75
1979/80	59,783[1]	440,639.25	48,250	539,079.50	77,855	157,039.00	185,888	1,136,757.75
1980/81	58,091[1]	460,939.75	60,505	666,291.25	83,022	167,673.00	201,618	1,294,904.00
1981/82	56,203[1]	474,355.50	66,570	713,353.25	83,998	169,719.00	206,771	1,357,427.75
1982/83	51,618[1]	621,183.00	66,711	1,081,211.50	81,225	207,131.50	199,554	1,909,526.00
1983/84	44,731[1]	697,294.50	64,062	1,134,739.50	75,119	266,116.50	183,912	2,098,150.50

[1] Includes wild turkey licences.

(B) Hunting Programs

A senior citizens moose hunt, a first of its kind in Manitoba, was held in the winter of 1983. Seventy residents over 65 years of age were given the opportunity to bag a bull or calf moose on Hecla Island. The licences were issued through a draw on a two hunters to one tag basis. All successful applicants were invited to attend a pre-hunt briefing and moose biology session put on by the Branch prior to the hunt. The Branch also provided service and assistance to the seniors at a moose hunter check station located at the south end of the island. Though only one moose was taken during the one week season, the majority of hunters remained optimistic and enthusiastic throughout, making the hunt an unqualified public relations success. As a result of this success, the seniors hunt will continue in 1984.

Sport hunting programs remained popular in 1983/84. Big game hunters enjoyed 275,200 recreation days, harvesting 1510 moose, 23,450 deer, 430 elk, 770 black bears, woodland caribou and wolves. In 1983, 34,587 resident and 5856 non-resident migratory game bird hunters seized the opportunity to take to the fields and marshes, and harvested 284,395 ducks, 158,604 geese and 1452 snipe.

(C) Amphibian and Reptile Harvesting

During the two week red-sided garter snake harvest, 43,440 snakes were captured live and sold to dealers in the United States for marketing in the biological supply and pet trades. At the rate of 60 cents per snake paid by non-resident dealers, this translated into $26,064 in income for Manitobans.

About 1360 kilograms of leopard frogs were harvested in 1983, the first such harvest since 1976, and sold at a price of $6.62 per kilogram for a total of $9000.00.

(D) Wild Fur Management

Manitoba's 17,000 trappers harvested approximately $3.8 million in wild fur in 1983/84, down about $700,000 from the previous year. Unfavourable weather conditions and a predicted decline in lynx populations contributed in a major way to the decline.

Trapper education and humane trapping program activities continued to increase substantially. Presentations were made in cooperation with the Manitoba Registered Trappers Association to more than 4000 students to present a balanced view of Manitoba's trapping industry.

Tramping Lake Field Station, located approximately 80 miles northeast of The Pas was completed and made fully operational in 1983/84. At the facility, Wildlife Branch staff field-tested trapping devices certified as humane by the Federal-Provincial Committee on Humane Trapping, and held trapper education and staff training sessions. In addition, the station was used as a meeting facility for the Manitoba Registered Trappers Association.

Fur staff administered seven special ARDA (Agriculture Rural Development Act) trapping grants. The grants provided $160,000 in assistance to trappers to aid in the purchase of traps, equipment and supplies. The Branch also supplied and transported more than $35,000 worth of materials to be used in the construction of 14 trapline base camps.

(E) Wildlife Damage Control

Policy and procedure directives were completed and approved relating to the control of nuisance wolves and to the safe handling and use of pesticides in predator control. The documents have been acclaimed throughout Manitoba and across Canada as a significant achievement in the controversial issue of wolf control.

Advances were also made in the prevention of big game animal damage to agricultural crops

Quantity Produced, Average Pelt Price, Value of Production and Provincial Royalty Paid, by Species, for the Year Ending August 31, 1984[1]

Species	Quantity	Average Price	Value	% of Total Value (Approx.)	Royalty Per Pelt	Royalty
Badger	489	$ 28.00	$ 13,692	.4%	$ .01	$ 5
Bear	679	58.00	39,382	1.0	.05	34
Beaver	31,234	20.00	624,680	16.5	.75	23,426
Coyote	8,569	46.00	394,174	10.4	.50	4,285
Ermine	5,212	2.50	13,030	.3	.05	261
Fisher	4,418	150.00	662,700	17.5	1.00	4,418
Fox, Blue	33	25.00	825	.0	.25	8
Fox, Cross	390	95.00	37,050	1.0	.25	98
Fox, Red	10,113	41.50	419,690	11.1	.25	2,528
Fox, Silver	83	58.00	4,814	.1	.25	21
Fox, White	107	21.00	2,247	.1	.75	80
Lynx and Bobcat	596	350.00	208,600	5.5	.50	298
Marten	3,380	60.00	202,800	5.4	.50	1,690
Mink	7,314	28.00	204,792	5.4	1.00	7,314
Muskrat	235,980	3.20	755,136	20.0	.05	11,799
Otter	1,595	42.00	66,990	1.8	1.25	1,994
Raccoon	3,081	22.00	67,782	1.8	.05	154
Squirrel	18,981	1.00	18,981	.5	.02	380
Wolf, Timber	379	83.00	31,457	.8	.25	95
Wolverine	67	220.00	14,740	.4	.75	50
Total			$3,783,562			$58,938

(1) Not included in the above figures: 204 Cross Fox, 211 Lynx, 688 Mink
Royalties collected — $844.50
— These quantities of pelts were charged to the Dominion Soudack Account in January, 1984.
— This was an adjustment to bring Dominion Soudack records in line with their actual count of pelts.
— It is not known when these pelts were purchased or if they are of Manitoba origin.

Number of Open Area and Registered Trappers and the Estimated Value of Manitoba Wild Fur Production for the 12 Month Period Ending August 31[1]

Year	Open Area Licences Sold	Registered Trapline Permits Sold	Total Production Value
1974/75	6,280	2,334	$2,583,230
1975/76	6,492	2,680	4,248,272
1976/77	8,602	2,879	5,528,268
1977/78	8,379	2,975	5,047,377
1978/79	10,040	3,238	7,882,404
1979/80	12,809	3,627	9,615,604
1980/81	13,327	3,425	8,240,619
1981/82	13,072	3,187	5,564,491
1982/83	13,938	3,110	4,313,572
1983/84	12,110	2,927	3,783,562

(1) In 1981/82, the departmental fur year was changed to the 12 month period ending August 31. The information for all previous years is based on the 12 month period ending September 30.

and beehive yards through the successful testing of bear-proof and deer-proof electric fences, animal scaring devices and taste and scent repellents. The Branch paid $178,706.92 in compensation to farmers and beekeepers for crop damage caused by big game animals in 1983/84. The Branch also paid thirty-one grants of 100 dollars each to 17 beekeepers to defray the cost of constructing bear-proof electric fences to protect their bee yards.

The Five-Year Waterfowl Crop Damage Protection Agreement was successfully negotiated with Canada in 1983/84. Under the terms of the agreement, Canada and Manitoba will share equally all costs of waterfowl crop damage prevention in Manitoba from 1983/84 through 1987/88. The long term nature of the agreement will facilitate long range program planning, improved assessment and initiation of technical studies to develop more effective procedures. Waterfowl damage prevention expenditures for 1983/84 totalled $187,347, of which half was recoverable to Manitoba from Canada.

(F) Wood Bison Re-establishment Program

The plan to re-establish wood bison in Manitoba came together in 1983/84 with the successful release of 34 wood bison into a 255 hectare enclosure in the Waterhen area. The project, funded by the Government of Canada, Government of Manitoba and the Canadian Wildlife Federation, came to fruition largely due to the persistence of the Waterhen Indian Band, the new managers of the wood bison. The project has improved Branch relations with the Waterhen band and provided much needed year-round employment for many of the band members. The ultimate goals of the project are to expand the enclosure to 2300 hectares, to establish a commercial wood bison ranch operated by the Waterhen Indian Band, and to develop a wild herd outside the enclosure.

Habitat Management Programs

(A) Wildlife Habitat Inventory

Inventory of moose habitat in the 152,000 km^2 Northern Flood Agreement area commenced in 1983/84 in partial fulfillment of the Northern Flood Agreement between the Government of Manitoba, the Government of Canada and five northern Manitoba Indian Bands. To date, 31 of 48 habitat inventory map sheets of the area have been completed using Landsat satellite imagery. The information will be invaluable to wildlife managers.

An inventory of deer habitat in southern Manitoba was also undertaken in 1983/84 using Landsat imagery. The inventory will determine quality of deer habitat in Agro-Manitoba, as well as identify and project deer habitat loss due to land clearing.

(B) Wildlife Management Area Program

An agreement which identifies the process for inventory, extraction and rehabilitation of mineral resource zones within wildlife management areas was negotiated with the Department of Energy and Mines and the Department of Highways. The agreement will minimize the negative impacts of gravel extraction and borrow pits on wildlife habitat.

Preparations were made to transfer responsibility for agricultural use within wildlife management areas from the Department of Agriculture to the Department of Natural Resources.

(C) Wetland Management Program

Land use conflicts in and around the Saskeram Marsh Wildlife Management Area near The Pas were resolved. The WMA had been established in 1963 to partially offset losses brought about by the Grand Rapids Hydro Development. However, local agricultural interests have sought to develop the Saskeram for farming. This proposal was vigorously opposed by The Pas Indian Band and other wildlife interests.

After extensive consultations with all parties involved, about 2100 hectares of land were removed from the WMA for agricultural use.

In addition, nearly 500 hectares of hayland inside the WMA were made accessible to local farmers each year. Vital wildlife production areas have been maintained and an area of prime moose habitat has been added. A $3.5 million agreement has also been negotiated between Ducks Unlimited Canada and the Province to develop the Carrot River Triangle portion of the WMA for improved waterfowl and furbearer production.

The Branch also reviewed and approved eleven other Ducks Unlimited Canada projects designed to enhance 59,993 hectares of waterfowl habitat in the province.

The Delta Marsh Development Program received a boost with the acquisition of 190 hectares of land in the School Bay area. The conversion of this property to Crown land clears the path for further habitat development projects in the marsh.

Discussion continued and an agreement was drafted towards the development of a Manitoba Heritage Marsh Program. The program, which involves the commitment of Ducks Unlimited Canada, the Manitoba Wildlife Federation, the Manitoba Naturalists Society and the Department of Natural Resources, is designed to preserve significant large marshes in the province. A planning process and strategy is in place, and program implementation is targeted for 1985.

(D) Deer Habitat Improvement

To improve deer habitat in the province, 80 hectares of forage were seeded at several locations throughout the province. Grasses and alfalfa were planted in a number of wildlife management areas, the Duck Mountain Provincial Forest and along a hydro transmission line right-of-way in southeastern Manitoba in an effort to increase the food supply for local deer populations. In addition, approximately 264 tonnes of supplemental deer ration were fed to deer during the winter at 74 key locations throughout Agro-Manitoba.

(E) Manitoba Habitat Heritage Program

The Manitoba Habitat Heritage Program was developed by Fisheries Branch and Wildlife Branch staff in 1983/84 with the goal of enhancing fish and wildlife habitat in Agro-Manitoba over the next four years. A total of $1.5 million will be spent on enhancement of fish and wildlife habitat, acquisition of habitat and easements and protection of habitat for rare and endangered wildlife.

(F) Manitoba Habitat Bequeathment Program

In 1983/84, two Manitobans donated land to the Province for wildlife under the Manitoba Habitat Bequeathment Program. The Noel Ham and Harry Cox Wildlife Refuges, encompassing a total of 57 hectares in west-central Manitoba, received formal designation this year. The program, designed to accept land gifts, improve existing wildlife habitat and ensure that habitat is preserved in perpetuity, gives donors the option of having their land donation designated as a wildlife management area, wildlife refuge or an ecological reserve.

(G) Road Allowance Habitat Program

Protection of natural wildlife habitat on undeveloped municipal road allowances in Agro-Manitoba is the objective of the Road Allowance Habitat Protection program. Wildlife Branch staff developed a slide-illustrated presentation outlining the benefits of road allowance habitat, and presented it to ten rural municipal councils, urging them to consider adopting municipal by-laws to protect this valuable land. Another 25 councils were contacted by mail. To date, four of the 35 councils contacted have passed by-laws prohibiting the clearing of native vegetation from these undeveloped road allowances.

(H) Crown Land Planning

In 1983/84 the Wildlife Branch continued to provide input to wildlife-related resource allocation issues on Crown and private land. Functions included the review of approximately 220 requests for general permits, land leases and mineral extractions. Staff were involved in the preparation of six planning district reports; review of six ecological reserve proposals; and review of several environmental impact statements, including the Waskada-Carman pipeline, the Limestone Generating Station, the Churchill-Gillam hydro corridor study and the Cross Lake Environmental Impact Statement. In addition, the Wildlife Branch continued to provide input to the Crown Land Classification Committee.

Biological Services

(A) Canada Geese Studies

Studies of the eastern prairie populations of Canada geese continued with cooperative financial support from several wildlife agencies in the Mississippi Flyway (Minnesota, Iowa, Missouri and Wisconsin), the Canadian Wildlife Service and the U.S. Fish & Wildlife Service. Over 800 geese were drive-trapped and banded in early August near Cape Churchill. A number of these marked birds were later observed near Oak Hammock and surrounding area during the fall migration. Spring nesting surveys of giant Canada geese in the Lake Winnipeg-Fisher Bay area revealed a very low overall nesting density.

(B) Waterfowl Banding

In 1983/84 a total of 17,083 ducks were banded at six stations in Manitoba, as long term evaluation of waterfowl hunting in the province continued.

(C) Bald Eagle Surveys/Transplants

A three-year agreement to support bald eagle nesting surveys in Manitoba was negotiated between the Department and the United States Fish & Wildlife Service. In 1983/84 Manitoba provided six young eaglets to the U.S. agency for restocking in Massachusetts and Pennsylvania. Eagle nesting surveys were completed in the Lake Winnipeg and north Interlake areas of the province. Preliminary results of these surveys were reported at an international conference, Bald Eagle Days, held in Winnipeg in late summer.

(D) Big Game Surveys

Survey techniques designed to estimate moose populations in the southern half of the Northern Flood Agreement Area were developed based on intensive computer analysis of Landsat satellite imagery. Surveys in southern and central Manitoba indicated that moose populations continue to be very low in many areas.

Deer population surveys were flown over Winnipeg and the Interlake and Southeastern Regions in 1983/84. Two hundred and ninety-eight deer were observed during the Winnipeg area survey, two-thirds of which were found in the Charleswood area. Surveys in the Southwestern Region were cancelled due to mild weather and lack of snow cover, an essential factor in successful aerial surveys.

Elk surveys continued in the Interlake Region and Duck Mountain area. Aerial surveys of the Spruce Woods herd were cancelled because of inadequate snow cover.

(E) Biometrics

A computer program was developed to analyze data from the past eight years of managed hunting at Oak Hammock Marsh to determine resident and non-resident hunter use patterns. The information obtained will be used to resolve resident/non-resident use conflicts in the area.

A computer model for examining big game populations was employed as population simulations of the Saskatchewan River Delta moose herd were conducted in response to a damage claim relating to the Grand Rapids Hydroelectric Project. A computer program was also developed for a data storage and retrieval system for humane trapping techniques.

(F) Rare and Endangered Species

The reproduction of burrowing owls in southeastern Manitoba in 1983 was less than half that recorded the previous year. A snowstorm in May was a major cause of the decline. One young owl banded during the summer of 1983 was recovered several months later in Texas.

Three peregrine falcons were raised and released from Mary Speechly Hall at the University of Manitoba in early August.

Long range studies of the great gray owl continued with 71 owls being banded during the winter months in the Grand Beach, Pine Falls and Lac du Bonnet areas. A new four year program plan has been prepared.

Monitoring of leopard frog and garter snake populations revealed that leopard frog populations are beginning to recover and garter snake populations remain stable.

Regional Wildlife Management

Southeastern Region Wildlife Branch staff combined forces with Manitoba Wildlife Federation members to drive 34 deer from Winnipeg International Airport property in an effort to safeguard the airport from aircraft/deer collision on the runways and taxiways. The project was a complete success, as subsequent aerial survey revealed that no deer remained on airport property.

Wildlife Branch staff in the Southwest Region were instrumental in the renegotiation of an agreement with Canada's Department of National Defence to renew their 10-year lease at CFB Shilo. Under the terms of the new agreement, Canada will provide Manitoba with $50,000 annually to be used for environmental studies in the Shilo/Spruce Woods area. Funds will be directed to several graduate studies on big game animals, reptiles and amphibians in the area.

Wildlife Branch staff in the Western Region continued negotiations and meetings with the Western Region Tribal Council in an effort to establish a native moose management board consisting of representatives from all bands in the council.

Interlake Region staff again assumed the responsibility for the Oak Hammock Marsh managed waterfowl hunt. Although fall concentrations of staging geese were down considerably from previous years, an estimated 6194 recreational hunting days were provided during the hunting season. The harvest of 3700 geese was down significantly from a high of 11,000 geese in 1982.

Wildlife input to forestry was increased in 1983 as Eastern Region staff participated in site planning and review of Abitibi-Price's one-year and five-year forestry plans.

Wildlife Branch staff in the Northeastern Region were responsible for implementing the Community Wildlife Management Project. The project, funded through the Resource Development Program under the Canada-Manitoba Northern Development Agreement, is designed to examine the potential for the effective utilization of wildlife resources in northern Manitoba through the use of various wildlife management initiatives. Progress was made in this program toward successful interjurisdictional barren-ground caribou management, as the fledgling Barren-ground Caribou Management Board defined the status of the herd, developed a Caribou Management Plan, and developed an educational program for schools.

Northeastern regional staff, in cooperation with Regional Services Branch, removed a total of 41 polar bears from the townsite of Churchill in 1983. Nineteen were held until freeze-up at the new polar bear holding facility, three bears were sent to zoos around the world and one problem bear was destroyed. The balance were captured and released far outside town limits.

Lands Branch

Responsibilities

Administers Crown land in Manitoba under The Crown Lands Act; maintains a Crown lands register; negotiates outstanding treaty claims and land settlements with Indian bands and the Canada Department of Indian and Northern Affairs; administers the allocation of wild rice leases on Crown land.

Temporary Dispositions

There were 9083 leases, licences and permits processed for a total revenue collected of approximately $1,490,000 ($1,332,000 collected on behalf of Parks Branch). These transactions included vacation home lots in provincial parks and use of Crown land for a variety of purposes such as residences, cottages, garden plots and commercial facilities. Guidelines for isolated cottaging have been established and are applied when considering applications. Pre-cleared lists of available lakes for remote cottaging by region have been developed for two regions, and are being developed for other regions.

Crown land requests from other government agencies and local governments are cleared and reservations placed. In 1983/84, 87 reservations, covering 740 parcels of land were placed.

Permanent Dispositions

Permanent disposition of Crown land:	
Orders-in-Council Approved -	144
Parcels of Land Involved -	614
Long-term Agreements:	
Agreements Paid Out and Land Transferred -	
Agreements Remaining in Effect -	113
Capital and Interest Payments -	$53,173
Conveyances of Mines and Minerals -	37

Land transfers were also made to Public Works Canada for federal programs of benefit to Manitoba and to northern cities and towns for townsite expansion.

Land Sale Program and Revenue, 1983/84

Activity	No. of Parcels	Revenue
Agricultural Sales	144	$1,184,345
Primary Residence	94	99,294
Recreational	20	122,474
Commercial and Other	18	58,300
Totals	176	$1,464,413

Indian Land Claims

Twenty-two Indian bands have validated treaty land entitlement claims. Another five are under review by Canada. Cabinet gave approval-in-principle for the survey and transfer of approximately 81 hectares at War Lake for the War Lake Band. The survey of approximately 890 hectares at York Landing for the York Factory Band has been completed. Transfer is pending.

The Mathias Colomb Band has revised its request for land at Hughes Lake to approximately 1578 hectares from 2023 hectares. Consultations continue with representatives of the Entitlement Bands and Canada as well as with local cottagers toward finalizing a written agreement for the settlement of outstanding treaty land entitlement in the province.

Flood claim settlement negotiations continue under the Fairford River System (Lake St. Martin), the Grand Rapids Forebay and the Northern Flood Agreements. Statements of Claim have been filed against the Province by the Grand Rapids Forebay and Northern Flood Committee bands. Under Article 4 of the Agreement the Northern Flood Committee Bands have requested that the Province establish a total of nine hold areas totalling approximately 1.6 million hectares. Under Article 3 of the Agreement the Bands have requested a total of 112 land exchange selections totalling 26,037 hectares. These requests are under review by the Province. The Province has transferred 60.3 hectares at Sea River Falls to Canada for the use and benefit of the Norway House band.

The Province has transferred 2312 hectares of compensation land for the use and benefit of the Fairford band and 650 hectares of compensation lands for the use and benefit of the Little Saskatchewan band to Canada. This completes the Province's commitment to provide lands owed due to the operation of the Fairford River water control structure.

The survey of 4455 hectares at Denbeigh Point to finalize a land exchange commitment made with the Chemawawin Band under the Grand Rapids Forebay Agreement has been completed.

The survey of approximately 141 hectares of land at Gods River as part of a land exchange request by the Gods River Band has been completed.

Wild Rice

A new Wild Rice Act and regulation was proclaimed on March 31, 1984, resulting in a new management program for wild rice production through a licensing and permitting system.

Since the new legislation was still pending, the 1983 fall rice harvest was conducted under an interim program. Leases expiring in 1982 were renewed for one year and all applications were held until the legislation was adopted.

The Department managed the 1983 Whiteshell harvest supported by an advisory committee with representatives from the Southeast Resource Development Council, Interlake Tribunal Council and the Fort Alexander Indian Band. The crop was poor resulting in only 50 to 60 people participating in the harvest. The program included a hand harvest season followed by mechanical harvestors.

Wild Rice Harvest (Royalties Waived)

	1982	1983
Total Harvest	188,208	152,227
Lakeside Price (per Kg.)	$2.45	$3.26
Leases	237	194
Harvest Permits	30	11

The wild rice test seeding program continued in 1983 by monitoring the 1982 seeded sites and seeding new lakes near Thompson, Snow Lake, The Pas, Ilford and the Interlake. A total of 1695 kilograms of wild rice was purchased at a total cost of $6,683.10. This program has gained an interest in wild rice in new areas of the province through positive results from test seeding.

Crown Land Registry

Conversion of land data from manual registers to the automated land information system continued. Twenty percent of the Registry data was entered during the year. Fifty-five percent of the data has now been transferred to the automated system. In addition, the automated system was enhanced to meet expanding needs for accounting, LGD land exchanges, land sales, and wild rice administration. The system provided automated production of invoices, permits and arrears notices.

The automated land information system consisted of eight visual display terminals and a printer in head office, and a terminal in the Thompson Regional office. The Departments of Municipal Affairs and Agriculture have been given access to retrieve registry data using their equipment. Other branches have received data in microfiche and hard copy format.

Appraisal Program

A general review of appraisals of the 7000 recreational lots throughout the province was initiated with particular emphasis on the Whiteshell and northern areas.

Appraisals Conducted 1983/84

Program	No. of Appraisals
Agricultural Crown Land Sales	100
Local Government District Land Exchange	115
Other	35
Total	250

Eight land exchanges were completed with six Local Government Districts during the year.

Crown Lands Act Amendments

Amendments to the Crown Lands Act in 1983 allow for taxes to be collected along with the annual rental for leases and permits so as to facilitate collection activity. Other amendments greatly strengthen the ability to control the use of Crown land. For example, the Department is now able to take immediate corrective action where unauthorized use of Crown land is endangering public safety, creating a public nuisance or causing damage to Crown land. Stricter penalties may now be levied for infractions of the Crown Lands Act and rehabilitation of damaged Crown as a result of unauthorized use may be ordered. Also, where tenants fail to pay the required annual rent or have breached the terms of their contract, their lease may be cancelled with a minimum of one month notice, instead of the three month notice previously required.

Surveys and Mapping Branch

Responsibilities

Administered the Surveys Act (Part II); provides legal land descriptions for permits and leases under various Provincial Acts; maintains all provincial geographical names; conducts land surveys as required by government agencies; implements and maintains a provincial system of control surveys and produces topographical maps; compiles and prints maps and plans; maintains a map distribution system, air photo library and remote sensing centre.

Administration

In addition to general administration, the Branch provided legal land descriptions and liaison services for all Crown land transactions such as plans of subdivision, land or mineral exchange, the Agricultural Crown Land Sales Program and for permits and leases under the Crown Lands Act and the Mines Act. The Branch also provided consents and orders of the Minister under the Municipal Act and Municipal Board Act.

The Toponymy Unit provided geographic name services to other government departments and the general public.

Toponymy Unit — Other Activities

Activity	1982/83	1983/84
Responses to Inquiries	575	650
Supplementary Name Location Maps	31	116
Name Data for Mapping Manuscripts	106	74
Research for Name Decisions	99	160
Original Commemorative Name Certificates	17	21
Duplicate Commemorative Name Certificates	41	49

Legal Surveys Conducted

Agency	Number
Crown Lands Branch	20
Parks Branch	2
Water Resources Branch	20
Department of Northern Affairs	8
Total	50

The number of Director of Survey Plans deposited in the Branch decreased considerably while the program of registering existing plans of cottage lot subdivisions continued.

Legal survey requirements under the Grand Rapids Forebay Agreement were completed. Surveys under the Northern Flood Agreement commenced at Norway House and Nelson House and similar surveys were scheduled for other communities.

Control Surveys and Topographic Mapping

A) Control Surveys

The provincial survey system, which is designed to support a multipurpose land information network, was extended in southwestern Manitoba and the south Interlake area under the joint Federal/Provincial Inertial Survey Program. A total of 215 survey stations located at or near township corners were targetted, photographed and measured to tie them into the survey system. An additional 205 station sites were selected and prepared for measurement in an area between 50 and 51 degrees latitude west of the Lake Manitoba excluding Riding Mountain National Park.

A geographical referencing framework was established under the Flood Damage Reduction Program in Virden, The Pas, and the Westwood and St. Norbert areas of Winnipeg.

B) Computations and Data

A computer purchased in 1982/83 became fully operational in 1983/84 with the transfer of 90% of the application software currently utilized by the staff. This equipment has greatly assisted the completion of Branch program.

The secondary horizontal control survey network in and around the City of Winnipeg was readjusted, with new data integrated into the network. A number of control survey networks in the rural and hinterland areas were re-evaluated in preparation for the Continental North American re-definition, scheduled for 1985/86. The generation of coordinate values and the management of positional survey data for the cadastral survey system enhanced the Province's computerized positional survey data file.

There were 218 requests for survey related data/information from other government agencies and from private industry.

C) Topographic Mapping

In the medium-scaled 1:20,000 mapping program, 33 map sheets were completed in eastern Manitoba for a proposed provincial park and 30 others in pencil manuscript form were completed for the Mineral Resources Division.

Aerial photography inspection was completed on 130 line kilometres for the Flood Damage Reduction mapping program. A total of 25 photo mosaics were constructed for various government departments. Forestry Branch staff found some of Surveys and Mapping Branch equipment valuable in preparing twenty-five 1:25,000 scale control manuscripts.

Photogrammetric consultation services were provided to various government departments and agencies including Highways and Transportation, Energy and Mines, Municipal Affairs, Natural Resources and Manitoba Hydro.

An aerotriangulation adjustment program was converted from a main frame computer system to the Branch's in-house VAX system.

Geographic Mapping

New maps and plans were prepared for various public and departmental purposes including resource use, recreation, land disposition and legal surveys. Major projects completed were the **Atlas du Manitoba,** Mantario Hiking Trail map, Whiteshell Provincial Park-Land Use map, Groundwater availability map for Virden and Hecla Island areas, and the first new base map for the Forest Protection Tower map series. Revisions were made to six Crown land maps, the Survey Control Network map, the M.T.S. Mobile Communication map and the Game Bird and Big Game Hunting brochures. A total of 17,464 aerial photograph prints were provided to the Air Photo Library for their clients. Eighty-three plans of legal surveys were prepared as well as several plans for natural resource use areas and Crown Land administrative boundaries.

Map Distribution and Remote Sensing

Revenue from the Map Sales and Air Photo Library reached a high of $180,700 up from $173,200 in 1982/83, partly due to the sale of 467 copies of the Manitoba Atlas. Through promotional exhibits, advertising in newspapers and presentations to special interest groups, staff contacted more than 14,500 customers.

The Remote Sensing Centre became involved in a Technology Enhancement Program (TEP) in cooperation with the Canada Centre for Remote Sensing (CCRS) in December 1982 and since then testing of remote sensing techniques for natural resource management has been conducted. The demonstration projects carried out included crop data monitoring, forest fuel and wildlife mapping, moose habitat inventory, assessing land use/land cover changes in the Dauphin Lake Fishery and monitoring irrigation activity on the Assiniboine delta aquifer. The projects resulted in continuing the Landsat Image Analysis system with the addition of ARIES-II in March 1984. The MRSC is now in a position to provide a continuous Landsat image analysis service. This will prove invaluable to planners and managers in Wildlife, Parks, Agriculture, Forestry, Fisheries, Hydro and others.

The Centre's 70 mm camera system was utilized for 1744 kilometres of supplementary aerial photography for other branches of the Department.

An aerial photography search system was established in the Thompson Regional Office which enables customers to view all air photos from 1950 to 1983. Department staff, Manitoba Agriculture staff and the general public are now able to determine the photos.